April 28, 1958

Paper Trade Journal

- How Much our Industry Will Grow by 1970
- Optics Used in Erecting Abitibi's New Machine

Replacement of Anti-Friction Bearings

Groundwood Production from Steamed Blocks

General Considerations in Pulp Mill Lubrication

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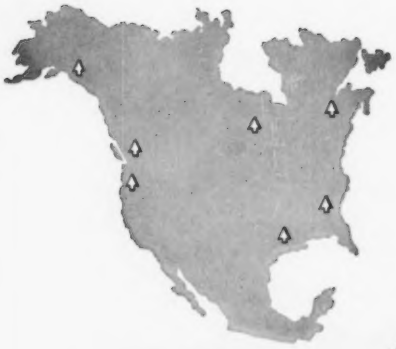

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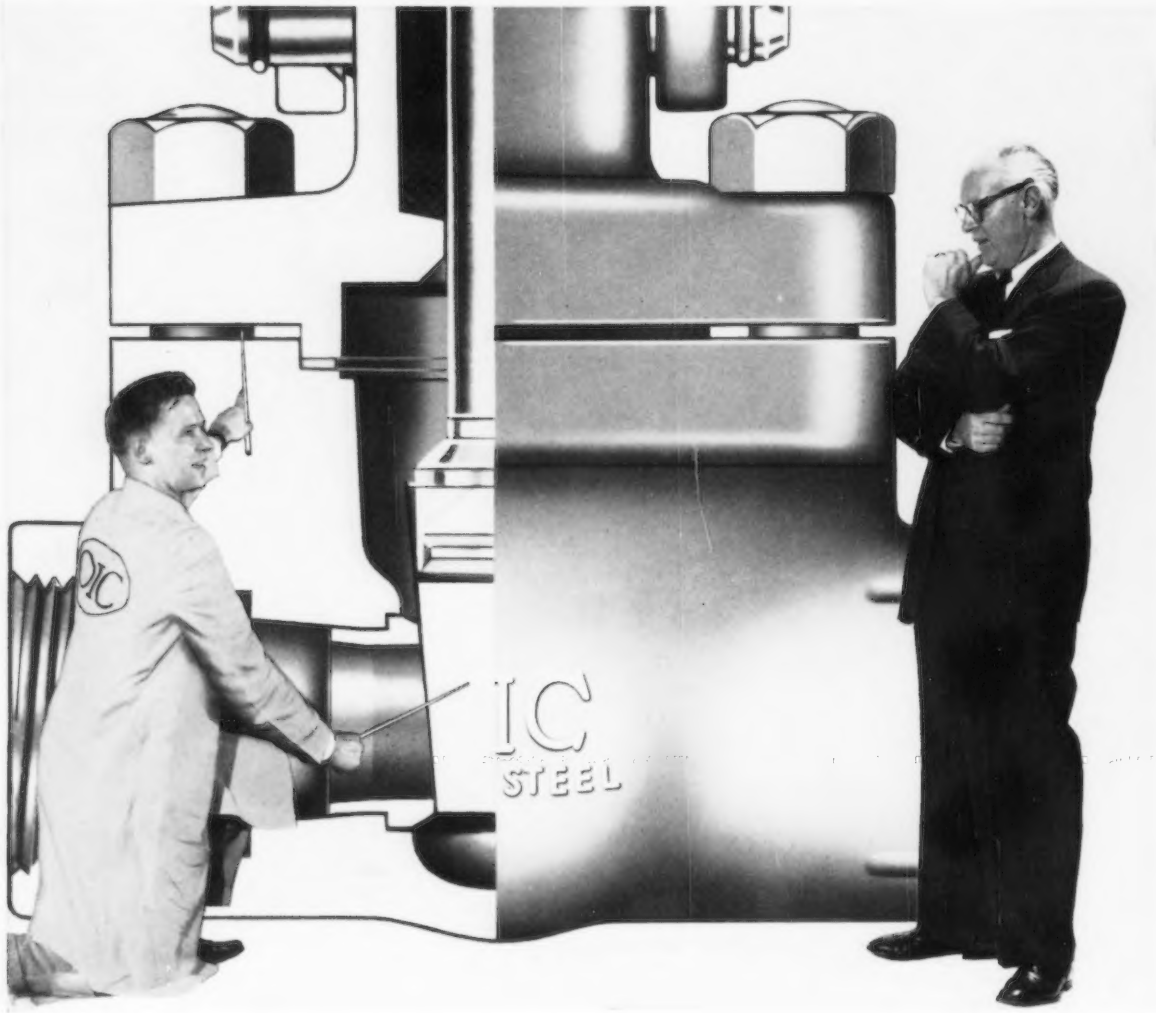

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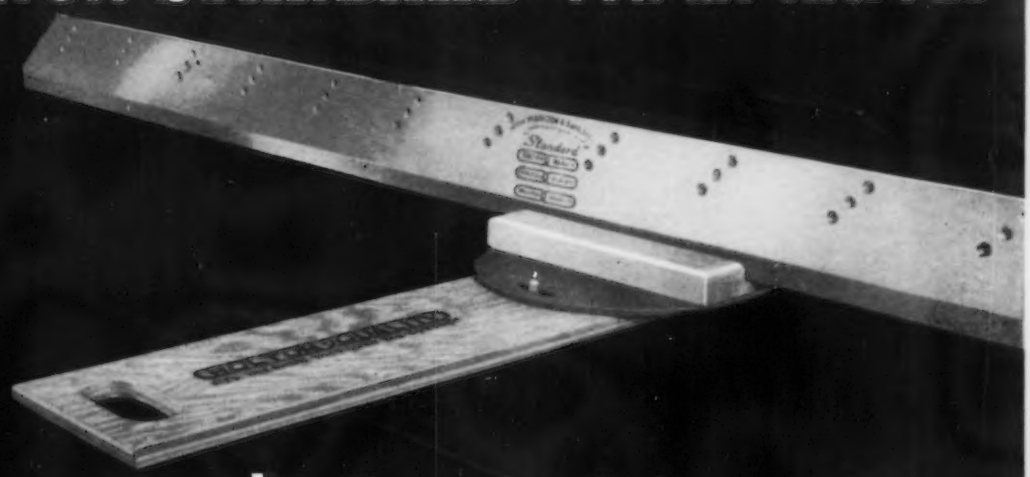

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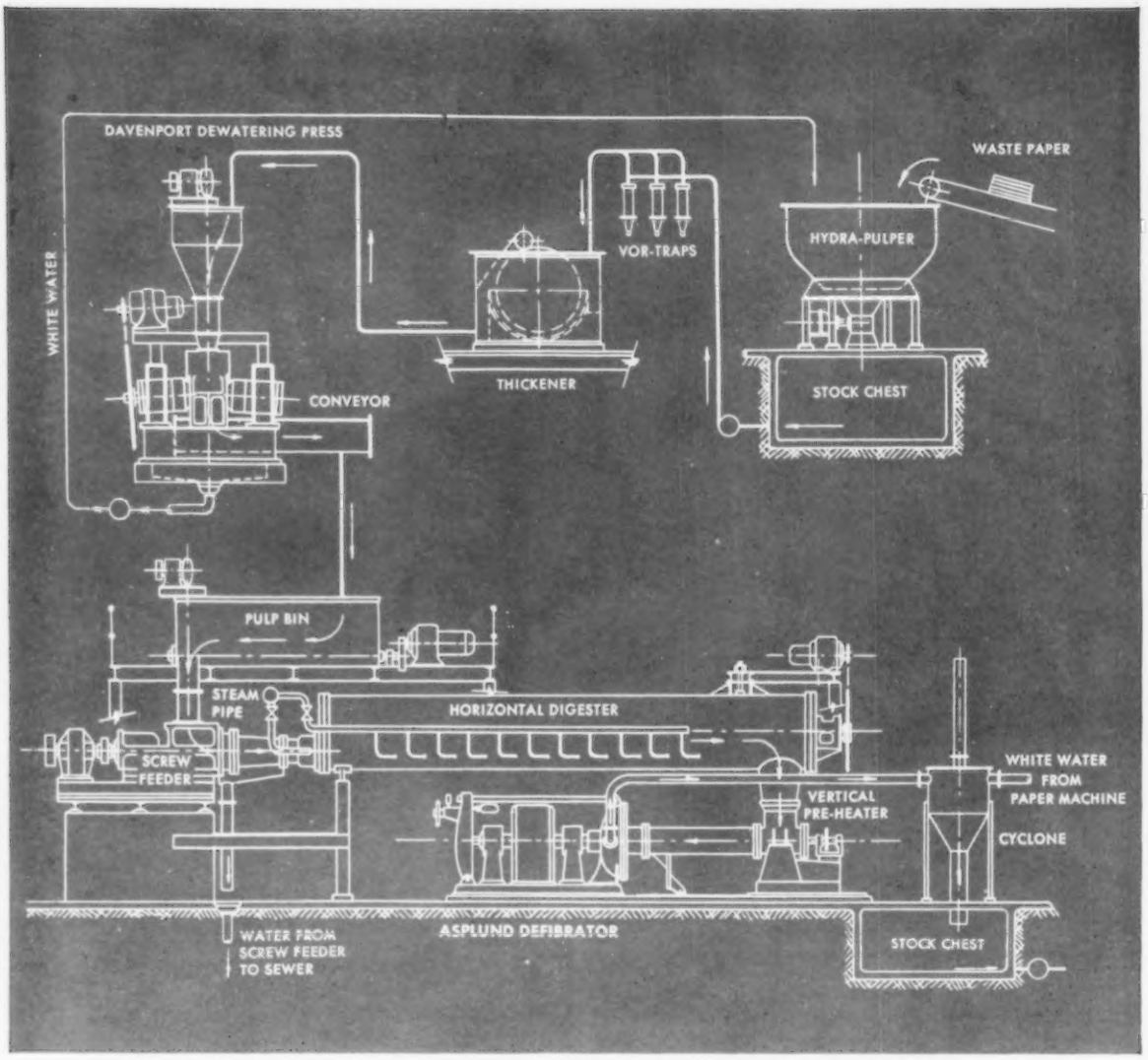

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REMEMBER THESE DATES

May 14-16: TAPPI Coating Conference, Bedford Springs Hotel, Bedford Springs, Pa.

May 20, 21: National Paperboard Assn. Spring Meeting; Santa Barbara Biltmore Hotel, Santa Barbara, Calif.

June 2-4: Technical Section, CPPA, Summer Meeting, Chateau Frontenac, Quebec City.

June 3-5: Superintendents' Assn. Annual Meeting Statler Hotel, Boston, Mass.

July 28-Aug. 1: TAPPI Engineering Conference, Multnomah Hotel, Portland, Ore.

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Nothing New On Business Picture

There is no definite change in the over-all economic picture since last writing about it. The various segments and indexes of business are showing sideways movement or only up or down slightly.

Surveyed Employment Outlook

The likelihood of considerable employment pick-up during the second quarter of 1958 is indicated by the results of a survey by Manpower, Inc. The survey represents the opinions of some 1900 executives from 25 key industries in all sections of the country. Among the paper and allied products manufacturers who were surveyed, 14.3% anticipated employment increases compared with only 2.6% who expect employment cuts. The majority, 81.8%, plan to maintain employment at present levels during this quarter.

Outlook for Western Expansion

The Pacific area is the smallest pulp producing region in the nation, states A. K. Beggs in an article in this issue. He says that it has only about 17% of the pulp mills in the country and about the same percentage of capacity. However "the West is the largest *market* pulp producing region in the nation" he points out. In forecasting future growth Mr. Beggs predicts that production will increase in the West at a faster rate than for the country as a whole.

An Outstanding Exception

Business activity of some paper companies is completely ignoring the recession. For example, Scott Paper Co. reports that sales for the first three months of this year were higher than for any quarter in the company's history. Other companies have reported increased sales but with declining profits. However Scott's earnings for the first quarter were above, albeit fractionally, the same period last year.

Student Employment May Be a Problem

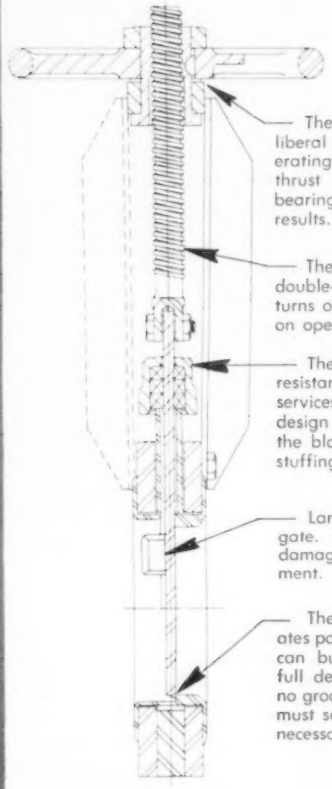
Shortage of summer employment for college students may make it financially difficult for some to return in the fall. Pulp and Paper companies are urged to make an extra effort to provide summer employment for students where possible this year.

Corrugated Box Production

Corrugated box production to mid April is running between 7 and 7.5% below the same period last year.

LOOK AT IT

This way...or this way!



The machined yoke head gives liberal bearing area for the operating nut, over 2½ times the thrust area of a pipe or tube bearing. Much smoother operation results.

The stainless steel stem has double-pitch threads for fewer turns of the handwheel, less wear on operating parts.

The Ni-Resist stuffing box is resistant to both acid and alkaline services. The inverted, self-aligning design eliminates side pressure on the blade, reduces the number of stuffing box adjustments.

Large positive blocks guide the gate. They cannot break off to damage pumps or other equipment.

The round port bottom eliminates pockets or cavities where stock can build up and interfere with full descent of the gate. There is no groove or slot in which the gate must seat; no clean-out plates are necessary.

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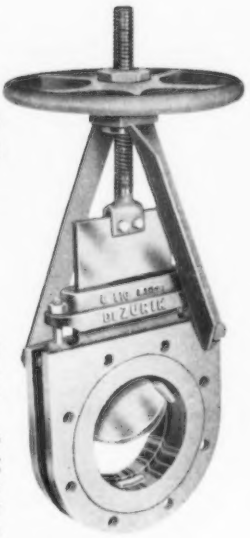

You save more when you buy them and go on saving every day they're in use!

They're fabricated to use corrosion-resisting material where it can come into contact with the flow (if it's necessary), and less costly steel for the surrounding structural parts. The rugged construction withstands severe piping strains and line pressures and still delivers smooth, easy operation—all the time! The full range of designs and large selection of metals guarantees a DeZurik Knife Gate Valve for *your* installation!

SPECIAL REQUIREMENTS can be met to your satisfaction! This is an 8" cylinder operated diversion valve for handling high density (16 to 20% consistency) kraft pulp stock from a digester line to a blow tank. When you have a valving problem, let DeZurik show you how easily, quickly—and economically—it can be solved!

For more information, ask for Bulletin 300.

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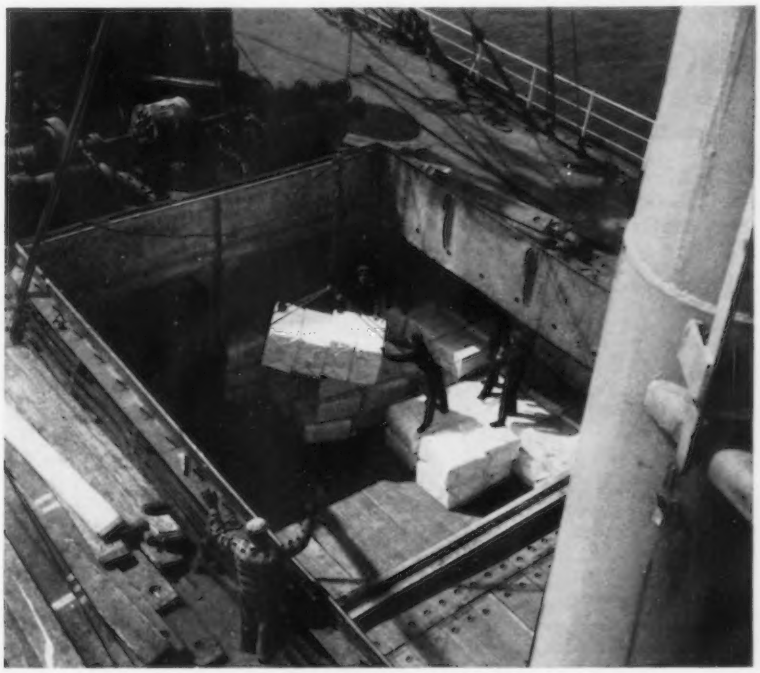

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At Gaspesia we enjoy many natural advantages. Northern spruce and balsam fir—slow-growing, long-fibered, best for sulphite pulp—are the sole sources of the pulp you receive from us. Our access to nearly a million acres of these fine trees assures you a dependable, top-quality supply.

Gaspesia's continuous flow bleaching, regulated by the most advanced control methods, applies automation to every possible operation. Uniform quality —so vital to your finished product—results from Gaspesia's superior equipment, operated by men who have spent lifetimes acquiring the "feel" of pulp making. They confidently urge you to try our pulps.

Gaspesia pulp has earned endorsement for many uses—*from papeteries to boxboard to tissues*. Among its characteristics: high opacity, high brightness, good strength, excellent bulk and trouble-free working properties.

Location on the Gaspé Coast, within easy reach of waterways to the whole world, affords low-cost water transportation, practically ice-free, to nearly every major market area. Shipping time to Europe is about half that from our Pacific Coast. Transcontinental rail systems speedily deliver carload quantities to both the United States and Canadian markets.

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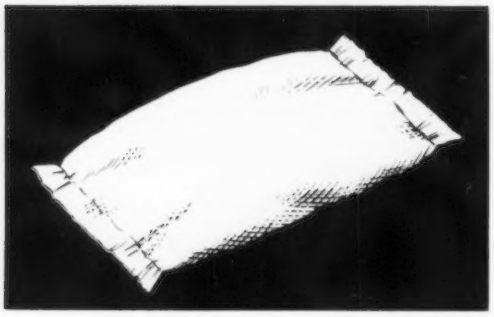

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coating and laminating adhesives.

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Federal Paper Board Arranges to Acquire Federal Glass Co.

Federal Paper Board Co. and Federal Glass Co. have completed arrangements for the paperboard company to acquire the latter.

The merger agreement has been approved by directors of both companies and will be submitted to stockholders for their approval. It provides for the exchange of one share of Federal Glass common stock for 1.155 common shares of Federal Paper Board and one-half share of the latter's 4.6 per cent cumulative preferred stock.

Federal Glass Co. manufactures corrugated containers as well as machine-made glass ware.

K-C Starts-up Connecticut Mill

On April 21, Kimberly-Clark corporation officially started up the paper machine in its first New England area mill at New Milford, Conn.

The paper machine measures 104 feet from inlet to reel. It is a sister machine to the unit at the Fullerton, Calif., plant of Kimberly-Clark. Auxiliary equipment for a second machine, announced recently and scheduled to go into operation late this year, is being installed now. The sheet produced is 160 inches wide. The machine itself is designed for producing 75 tons daily of creped wadding for converting into Kleenex facial tissues, Kleenex table napkins and other products of the Kimberly-Clark sanitary wadding lines.

The machine room is lined with glazed tile except for the 66 feet of glass on the west wall. The windowed area is of tinted glass to reduce glare.

Kimberly-Clark corporation's first New England area plant at New Milford is a light beige-colored brick and 'black glass' structure about 25 feet high and about 820 feet long, parallel to the Housatonic river. The 350,000 square foot plant was designed by Skidmore, Owings and Merrill, architects for the Fullerton, Calif. creped wadding manufacturing and converting plant of the corporation.

The plant is designed for ease and flexibility in production and the handling of materials. Pulp bales are moved by conveyor from the north storage area to the pulper. Rolls of sanitary wadding are moved from the machine room by tractors into the storage area for use in the 48,000 square foot converting area where it is transformed into Kleenex tissue or table napkins. Automatic equipment boxes the tissues and moves sealed containers on an elevated conveyor line to storage and shipping areas.

Mead Sets-up NSSC Waste Research Project

A research project on the treatment of liquid wastes from the semi-chemical pulping process has been established at the University of North Carolina by The Mead Corporation.

The two-year project, which will begin June 1, 1958, will be conducted under the direction of Daniel A. Okun, Professor of Sanitary Engineering at the School of Public Health, University of North Carolina, Chapel Hill. The project is an additional major step in Mead's stream improvement program which was started at Sylva in 1937.

The importance of color pollution in the semi-chemical process has been recognized by the industry for a number of years. In 1947 the National Council for Stream Improvement established a project at the Mellon Institute of Industrial Research and since 1948 has had a continuing project on color removal at the Virginia Polytechnic Institute. In 1956 still another project was established at Purdue University.

Latest on Noralyn

The following statement by Leo L. Stack, president gives the most recent information on the Noralyn Paper Mills Inc. project.

"We are planning the construction of a pulp and paper mill on a site in St. James Parish, Louisiana, approximately 10 miles south of the city of Donaldsonville. The site is located on the Mississippi River and on the Texas and Pacific Railroad.

"We plan an initial production of newsprint. Our expansion would be toward the various printing grades. Our principal wood types would be cotton wood, willow and the various species of gum.

"Engineering requirements are now progressing under direction of Barnard and Burk, Inc., Consulting Engineers, Baton Rouge, Louisiana and Walter Kidde Engineers-Southwest, Inc. of Houston, Texas and Baton Rouge, Louisiana.

"Engineering and general planning has not yet developed to the point to where we could advise specifically as to plant capacity, provision and alignment of various equipment or, intelligently, as to the finally planned end products."

Hinton Mill Goes Over the Top

The pulp production at North Western Pulp & Power Ltd.'s Hinton Mill has soared over the Company's design capacity of 430 daily tons to a record high of 451 tons.

On March 30th, North Western's production figure passed the 400 mark, and from that time new records were made until finally production exceeded the capacity at which the mill was designed.

Southern Unions Plan Demands

The Southern Assn. of Pulp & Paper Unions at its annual meeting adopted a pattern for contract demands which will affect the paper industry in 11 southeastern states.

The association will now call for a guaranteed annual wage, a substantial wage increase, an additional holiday each year, an improved hospital and insurance program and an improved pension plan.

Scott's Biggest Order

Scott Paper Co. announces the receipt of the largest single order for paper products in its history, and according to available records, the largest in grocery history.

The order, for more than 60 carloads of household paper products was placed with the supermarket chain, Loblaw, Inc., whose headquarters are in Buffalo, N. Y.

One of the country's fastest growing chains, Loblaw will feature the entire line of Scott retail products in all of its 195 supermarkets.

To fill the Loblaw order, shipment had to be made from Scott mills in Winslow, Maine; Chester, Pa.; Detroit, Mich.; Fort Edward, N. Y. and Sandusky, Ohio.

Newsprint Production

Production of newsprint in North America during March, 1958 amounted to 670,152 tons and was 9.3 per cent under the all-time March peak attained in 1957. Shipments totaled 622,095 tons in March, 1958 and were 9.5 per cent below shipments in the corresponding months of 1957. According to the Newsprint Service Bureau, output in the United States was 148,389 tons and shipments were 151,004 tons and respective decreases from March, 1957 amounted to 9.8 per cent and 6.3 per cent. Canadian production amounted to 521,763 tons while shipments totaled 471,091 tons. Declines from the year ago levels were 9.1 per cent and 10.5 per cent respectively.

Production of newsprint paper in North America through the end of March, 1958 amounted to 1,939,624 tons which was 184,888 tons or 8.7 per cent below the historical high attained in the same period of 1957. United States mills produced 445,787 tons or 27,000 tons and 5.7 per cent less than in the first three months of 1957. Output in Canada amounted to 1,493,837 tons and was 157,888 tons or 9.6 per cent under the volume produced in the first three months of 1957.

Back Copies Badly Needed

The following back copies of Paper Trade Journal are urgently required to permit a research library to bind its volumes.

1952: Feb. 29, Mar. 7, May 9, May 23, Aug. 15, Sept. 5 and Nov. 7 and 14.
1953: Jan. 16
1954: Jan. 22, Apr. 16, Jun. 19, July 2, Sept. 10 and Dec. 24
1955: Feb. 21
1956: Jan. 9 and Mar. 5

If you have any of the above issues and wish to sell them, please get in touch with the editor.

Time, labor, and water are saved by the Mac-Sim-Bar paper mill in cleaning cylinder machine wires with a John Bean high pressure washing unit. The unit has three 50-ft. lengths of ½ inch high pressure hose with couplings; and three high pressure, adjustable-spray guns, each operating at approximately 11 gallons a minute. If desired, the combined capacity of 35 g.p.m. can be utilized by attaching a John Bean Champion spray gun. For specialized cleaning, or operations that require extremely high pressure, discharge pressures up to 800 p.s.i. are available.

Waldorf Rebuilding Board Machine

Waldorf Paper Products Co. is converting its number 4 machine at St. Paul from a cylinder to a fourdrinier in order to permit full use of production from its new kraft pulp mill at Missoula, Mont.

At St. Paul Waldorf produces kraft liner, corrugating medium, and boxboards.

Paper and Board Production

According to the American Paper and Pulp Assn., the ratio of the United States production to mill capacity for the week ending April 12, 1958, was 85.5 per cent compared with 89.6 per cent revised for the preceding week. The ratio was 96.2 per cent for the corresponding week a year ago.

The paperboard production ratio for the week ending April 12, 1958, was 82 per cent compared with 88 per cent for the preceding week and 94 per cent for the corresponding week last year.

(Detailed statistics on page 17.)

Canadian Fine Papers Off 2%

Canadian fine paper production in February was off slightly, at 20,328 tons, from the 20,703 tons produced in the same month last year. Output to the end of February totalled 41,087 tons as against the year ago figure of 40,872 tons.

Fine paper shipments in February were 20,188 tons this year as compared with 20,518 tons in 1957. Shipments in the first two months were 41,994 tons this year as against 42,079 tons in 1956. Included in the two month total for this year were domestic shipments of 39,575 tons and exports of 2,419 tons. In the same period last year, shipments to Canadian consumers totalled 39,574 tons while exports were 2,505 tons.

Coated paper output in February was 2,413 tons as compared with 2,329 tons a year ago. Shipments for the month were 2,462 tons this year and 2,245 tons in 1957. In the first two months, coated paper production totalled 4,774 tons and shipments 4,876 tons. For the same period last year production was 4,902 tons and shipments were 4,961 tons.

How
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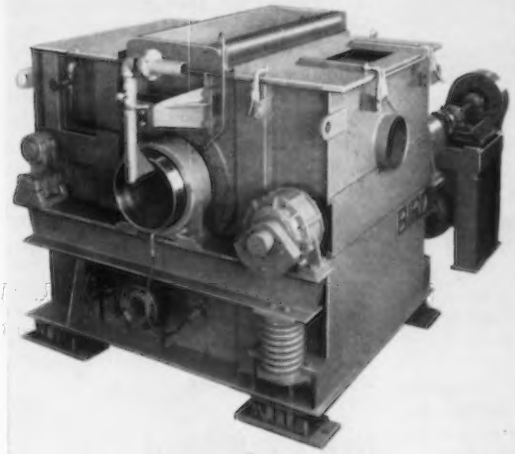

Average Performance Figures

Type of Stock	Screen Plate	Consistency	Air Dry Tonnage
Unbleached Sulphite	.012″	1.5	55
Unbleached Kraft	.012″	1.6	58
Bleached Kraft	.012″	1.9	80
Semi-Chemical	.018″	1.7	86
Board Filler	.020″	2.0	110
Newsprint	.014″	1.7	83

SAVE FLOOR SPACE — One Vibrotor Screen takes up less than one-fourth the space required by older type screens to do the same job.

SAVE AUXILIARY EQUIPMENT — The ability of the Vibrotor to screen at high density means less thickening equipment. Pumping of white water for dilution purposes is minimized and this means smaller sized pipes, smaller pumps and greatly reduced power costs.

For high quality, slotted plate screening, of large volumes of high consistency stock at low screening cost per ton, nothing equals the Vibrotor Screen. Ask for recommendations, layouts and estimates.

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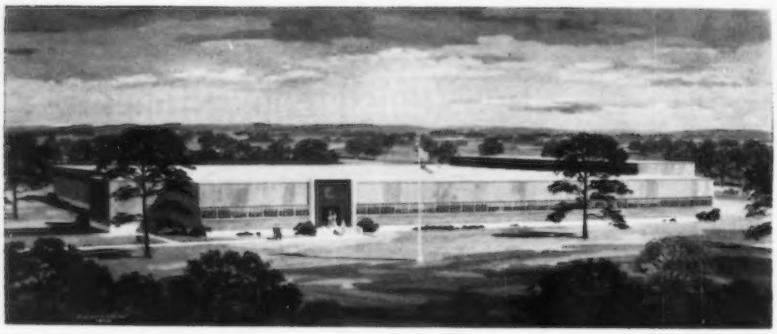
CANADIAN INGERSOLL-RAND COMPANY, Limited, Montreal

NEWS OF CONVERTERS



Continental Can Building Texas Box Plant

Continental Can Company has awarded a contract for construction of a corrugated box plant in Tyler, Texas to the Clanahan Construction Co. of Tyler. Construction began the week of April 7th and the plant is scheduled to be ready for operation July 31. The plant, was designed by Continental's construction engineering division. The building will initially have 45,000 square feet of floor space and has been planned in such a way that it can readily be enlarged.

The plant will be equipped for the manufacture of a complete line of corrugated boxes from corrugated sheets which will be supplied by the Company's Jackson, Mississippi corrugated box plant. A corrugator will be added at a future date.

This will be the sixteenth corrugated box plant operated by Continental domestically and will bring the total number of Continental plants to 140.

Cascade Container Now in Operation

Cascade Container Corp. has started production at its Wallula, Wash., plant on the Columbia river.

Initial deliveries of corrugated shipping containers to customers in the Northwest were announced by William F. Farley, general plant manager.

A pulp and paper mill to provide kraft paper for both the 80,000 sq. ft. Wallula plant and another container plant to be constructed at Burley, Ida., will be built at the Wallula site.

New Folding Machines at Eastern Envelope

W. H. Temple, president, and Norman G. Temple, treasurer, announced recently the completion of the installation of a complete line of new folding and printing envelope machines at the Eastern Envelope Manufactory Inc., Springfield, Mass.

These machines are capable of manufacturing both window and regular commercial envelopes printed and plain at extremely high speeds. This year is the 50th anniversary of the firm.

Seaman Begins Work On New Plant

Construction of a new plant in the San Fernando Industrial Center was begun this month by the Seaman Products, a division of Seaman Paper Co., Evanston, Illinois.

The building will include air-conditioned offices, laboratories, production areas and machine shops for the manufacture of thermal and acoustical insulated products for the aircraft and missile industries.

Multiwall Manager at Hudson for Georgia-Florida District

Hudson Pulp & Paper Corp., has announced the appointment of Harold G. Port as district manager in the Multiwall Division covering the Florida and south Georgia territory.

Mr. Port was formerly associated as a sales representative with the Northwestern Bell Telephone Company; Olin Mathieson Chemical Corp. Forest Products Division; and Cunningham and Pickett Co.

Another Box Plant for O-M

Plans for the construction of a corrugated shipping container plant at Joliet, Ill. were announced this week by Olin Mathieson Chemical Corp. The company recently announced plans to establish a similar plant in Cincinnati.

The Joliet plant will have a production capacity of 30,000,000 square feet of corrugated board a month. The building will house an 85-inch Langston corrugator with three flutes and three printer slotters.

R. H. Adam has been named general manager of the Joliet operation. Mr. Adam was formerly district sales manager for containers in Chicago.

Site for the plant is four miles south of Joliet on the Des Plaines river. It will be serviced by the Chicago, Rock Island & Pacific Railroad. A barge dock, on the river, will be connected to the plant by a conveyor. This will make it possible to ship linerboard from Olin Mathieson's paper mill at West Monroe to Joliet by barge as well as by rail.

After the Joliet and Cincinnati plants are in operation, the company's container operations will consist of 85-inch corrugators at each of these locations, 85-inch and 78-inch corrugators at West Monroe and sheet plants at Kansas City, Mo., Essexville, Mich., and Harlingen, Tex.

New V-P at Merit

Alfred Ross has been appointed vice president of Merit Container Corporation, at Wassaic, New York, in charge of plant production. Formerly, Mr. Ross had been plant manager of the Allcraft Container Corporation, of Harrison, New Jersey. He has been associated with the Allcraft organization and its predecessor firm since 1931.

Change in Ritchie Co. Name

Stone Container Corp., W. C. Ritchie Division, is the new designation for the Chicago package-making operation which has been known as W. C. Ritchie and Co., subsidiary of Stone Container Corp. The Ritchie operation, which produces folding cartons, set-up boxes, fiber cans and tubes and other packages at 8801 Baltimore Ave., Chicago, was acquired by Stone Container in 1955.

New Press at Hano

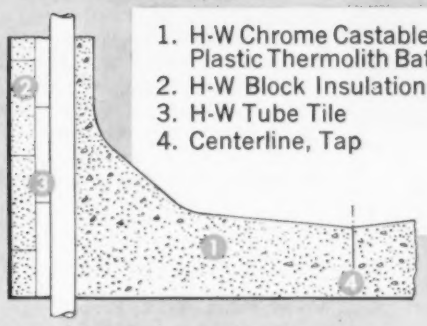
Philip Hano Co., Holyoke, Mass. has completed installation of a new Ashton press, costing approximately $50,000, that enables the local concern to expand its work preparing IBM punch forms.

In recovery boiler furnaces . . .

HARBISON-WALKER CHROME REFRACTORIES

continue to make outstanding service records

ALL-MONOLITHIC CONSTRUCTION



1. H-W Chrome Castable or Plastic Thermolith Batch
2. H-W Block Insulation
3. H-W Tube Tile
4. Centerline, Tap

H-W CHROME CASTABLE (dry in sacks)

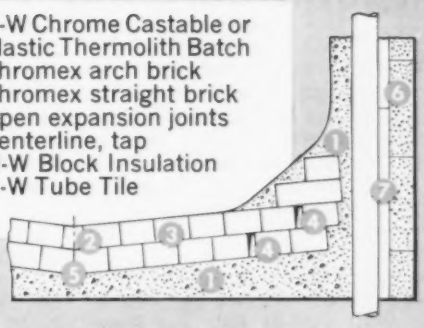
At many mills it is considered the best refractory yet developed for bottoms and lower side walls of paper mill recovery furnaces. It has high density and is extremely resistant to chemical attack and erosion by the molten smelt. It is easy to use without special experience, and may be applied by air-placement guns and by casting both for complete installations and for maintenance patching.

PLASTIC THERMOLITH BATCH (Plastic Chrome Ore)

This leading plastic chrome ore refractory is a ramming mixture which becomes hard, dense and highly impervious to the molten salts, upon air drying. For the monolithic lined parts of recovery furnaces, it provides the high, all-temperature strength and resistance to chemical corrosion, required for long dependable service.

BRICK AND MONOLITHIC CONSTRUCTION

1. H-W Chrome Castable or Plastic Thermolith Batch
2. Chromex arch brick
3. Chromex straight brick
4. Open expansion joints
5. Centerline, tap
6. H-W Block Insulation
7. H-W Tube Tile



CHROMEX BRICK

High mechanical strength, constancy of volume at high temperatures, resistance to spalling and to chemical attack by sodium salts are outstanding properties which account for the excellent service records of Harbison-Walker CHROMEX. This chemically-bonded chrome-magnesite refractory is especially suited for the linings of all designs of recovery units.

THERMOLITH Bonding Mortar

(in sacks or steel drums)

Made with a chrome ore base, this cold setting cement provides a strong, highly impervious joint compatible in thermal expansion and chemical composition with CHROMEX brick.

HARBISON-WALKER REFRACTORIES COMPANY
AND SUBSIDIARIES

World's most complete refractory service — with all types and classes

General Offices Pittsburgh 22, Pennsylvania

NEWS OF ASSOCIATIONS

Seated left to right—R. E. Bowen, G. W. Renninger, F. D. Whitehead, Jr., R. S. Magruder, W. A. Green. Standing left to right—E. H. Graves, G. W. Dean, C. E. Snook, R. H. Simmons, J. L. Baker.

Maintenance Featured at Virginia-Carolina TAPPI

The second regular meeting of the Virginia-Carolina Section of TAPPI was held March 14, 1958 in the Hotel Jefferson, Richmond, Virginia. The program consisted of an afternoon meeting with maintenance as the theme. This was followed by a dinner and an address by Mr. George W. Dean, State Forester of Virginia.

During the afternoon session F. D. Whitehead, Jr., Engineering Department, West Virginia Pulp and Paper Co., Covington, Virginia spoke on "A Program for Effective Maintenance." The ultimate purpose for such a maintenance program, Mr. Whitehead said, would be to increase worker efficiency from 35-40 per cent to 70-75 per cent when work is planned and intelligently supervised.

C. E. Sutton, Jr. of the General Electric Co., addressed the section on "Productive Maintenance—The Time is Now." Mr. Sutton remarked that "the oil, sniff and hope concept of maintenance is as out-of-date as Pharaoh's chariot is in today's era of jet transportation." Summarizing further, Mr. Sutton said, "The total effect of *more people* with *more dollars* wanting *more products* presents industrial management with many challenging problems to produce the goods required." What this means then is that "management must be convinced that productive maintenance is not just an expense but rather one of the real keys to profits—" and that "a period of slack production could be the ideal time to plan and institute a soundly engineered program" of Productive Maintenance.

"Productive Maintenance and Your Electrical System" was the subject of T. M. Husher's talk. Mr. Husher is manager of the Richmond Service Shop of the General Electric Co. His paper discussed the maintenance of important electrical equipment. In addition to listing several important tests on electrical equipment, Mr. Husher stressed that all too often an inspection program considered the mechanical only, completely neglecting the electrical inspection—"a compressor is useless without a driver," said Mr. Husher.

The after-dinner speaker, George W. Dean, State Forester of Virginia presented a review of the statewide status of our most important raw material—wood.

The importance of forestry in Virginia is more fully recognized when one realizes that six acres of every 10 are in forest cover. Mr. Dean traced the trends in hardwood and softwood growth in the state by comparing the recently completed (1956) forest survey with the survey of 1940. During the sixteen year period there has been an increase in wood of almost 20% (on cubic foot basis). This is due entirely to increase in the hardwood species as the softwoods are at a break-even point or slipping behind slightly.

It is evident then—according to Mr. Dean, that for the paper industry to expand in Virginia it must:

1. Own sufficient timberland to produce our own needs.
2. Improve utilization of present pine volume by:
   a. Using thinnings and tops
   b. Less desirable wood
   c. Chip slabs
3. Increase yield per cord.
4. Increase usage of hardwoods.

Following the review, Mr. Dean showed about thirty slides illustrating forest practices in Virginia.

Pen-Jer-Del Spring Meeting

The 1958 Spring Meeting of the Pennsylvania-New Jersey-Delaware Division of The Superintendents Association, will be held on May 9-10 at Yorktowne Hotel, York, Pennsylvania.

The program calls for a technical session on both the morning and afternoon of Saturday, May 10. Program Chairman William M. Shane, National Vulcanized Fibre Co., 2nd Vice Chairman of the Division, will preside over the morning session. This session will feature a panel discussion on "Modern Felt Practices". Andrew C. Miller, P. H. Glatfelter Co., Spring Grove, Pa., will be its moderator.

Mr. Woodside will talk on "What Chemically Treated or Synthetic Content Felts Can Do For You"; Mr. Peters, on "New Felt Applications for the Practical Papermaker"; Mr. Wilder, on "Felt Maintenance"; and Mr. Beardsley, on "Felt Operating Problems".

Two sessions to be running concurrently. Each session is designed for the individual papermaker who wishes to discuss problems relevant to his operations.

Cylinder machine operations will be discussed at one session; fourdriner machine operations, at the other. John J. Steinbender, Riegel Paper Corp., will moderate the session on cylinder machine operations and Boyd Shirlaw, Hamilton Paper Company, Miquon, Pennsylvania, on fourdrinier machine operations.

Coating Conference Details

The Ninth Annual TAPPI Coating Conference will be held at the Bedford Springs Hotel, Bedford, Pennsylvania, on May 14, 15, and 16, 1958.

Highlight of this year's meeting will be a panel on "Coating Formulations," headed up by Frank Kaulakis, Consolidated Water Power & Paper Company. Another interesting feature will be a panel, "The Practical Aspects of Rheology is Related to the Coating of Paper and Paper Board," Moderator, H. O. Ware, Beveridge Paper Company. In addition to the panels, sixteen technical papers on related subjects will be presented.

A special feature of the Conference will be a tour of the largest plant of the Plastics Division, Koppers Company, Inc. The tour will include a visit to the styrene plant, which is the basic raw material for styrene-butadiene latices; the latex producing facilities, where many latices are produced, including those for paper coatings; and the modern development laboratory.

Outstanding feature of the tour will be a demonstration of a new paper coating machine which is the only one of its kind in the country. Through the use of this large paper coater, Koppers plans to duplicate a wide range of coating conditions that might be anticipated in the operations of a paper mill.

Empire TAPPI Annual Meeting

The annual meeting of the Empire State Section of TAPPI will be held June 12-14 at Whiteface Inn, Lake Placid, N. Y.

The following program is planned:

"Cold Soda Pulping of Hardwoods" by R. D. McPheters, Gould Paper Co., Lyons Falls, N. Y.; "Semichemical Pulping of Hardwoods" by R. H. Taylor, Finch, Pruyn & Co., Glens Falls, N. Y.; "A New Method for Pulping Hardwoods" by G. H. Tomlinson II, Howard Smith Paper Mills, Ltd., Cornwall, Ont.

"A New Look at Bleaching Wood Pulps" by John D. Rue and presented by W. H. Monsson, Hooker Electrochemical Co., Niagara Falls, N. Y.; "Bleaching of High Yield Pulps from Hardwoods" by R. S. Painter, International Paper Co., Glens Falls, N. Y.; Empire State TAPPI Junior Award Papers, chairman J. C. Rice, Lowe Paper Co., Ridgefield, N. J.

Panel and discussion on color comparison and matching through instrumentation. Panel members: D. R. Hull, Instrument Development Laboratory, Inc., Attleboro, Mass.; M. W. Westgate, Gardner Laboratories, Bethesda, Md. and M. Cattaro, Gardner Laboratories, Bethesda, Md. Note: Bring one of your color problems with you. Individual demonstration after meeting. "Future Developments in Graphic Arts" by M. Bosak, J. W. Clements Co., Buffalo, N. Y.

"New Developments in Fourdrinier Wet Ends" by W. S. Corbin, Black-Clawson Co., Watertown, N. Y.; "Paper Curl as Related to the Wet End" by W. E. Carlson, St. Regis Paper Co., Carthage, N. Y.; New Developments in Cylinder Wet Ends", Beloit Iron Works, Beloit, Wis.; "Wet End Operation of Cylinder Machines."

Maine-NH TAPPI Program

The Spring meeting of the Maine-N.H. Section of TAPPI will be held on June 13th and 14th at the Poland Spring House. The subject of the technical sessions will be "Utilization of Heat in the Pulp & Paper Industry." Concurrent with the meeting will be an Industrial Engineering program.

The tentative arrangement for Friday afternoon will be:

Presentation of four papers

"By Product Steam Power" by W. E. Knight—Stone & Webster Engineering Corp.

"Heat Exchange Equipment in the Modern Paper Mill" by William Pittam—Stone & Webster.

A paper by J. D. Lynch—J. O. Ross Engineering

A fourth paper on the general subject.

Figures of the Week

PAPER PRODUCTION RATIO REPORT—American Paper & Pulp Assn. Figures

(Production as percent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

1958	March 15 90.5	March 22 91.0	March 29 90.3	April 5 89.6r	April 12 85.5
1957	March 16 96.9	March 23 96.8	March 30 97.2	April 6 96.1	April 13 96.2

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1958	85.5‡	88.5‡	89.5‡	—	—	—	—	—	—	—	—	—	—
1957	94.2	97.0	97.1	94.0	94.6	93.3	75.6	90.7	86.0	93.0	90.7	81.5	90.9

‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1951	1952	1953	1954	1955	1956	1957	1958
Year to Date	101.3	96.6	94.9	94.1	95.4	101.1	96.0	87.7
Year Average	98.0	88.6	92.3	91.6	94.0	97.9	90.9	

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available.

PAPERBOARD OPERATING RATIOS†—National Paperboard Assn.

COMPARATIVE WEEKLY SUMMARIES

1958	March 15 89	March 22 88	March 29 86	April 5 88	April 12 82
1957	March 16 95	March 23 95	March 30 92	April 6 93	April 13 94

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1958	80	86	88	—	—	—	—	—	—	—	—	—	—
1957	91	94	94	92	93	91	72	94	91	97	92	79	90

† *Percents of operation based on "Inch-Hours" reported on a 6-day basis.*

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Assn. Figures

ITEM	THIS WEEK ENDING	LAST WEEK ENDING	CUMULATIVE TO DATE
	Apr. 12, 1958	Apr. 5, 1958	Jan. 1 to Apr. 12, 1958
% Activity	82%	88%	85%
	Tons	*Tons*	*Tons*
Total Production	256,970	279,404	3,803,905
Liner	96,330	93,867	1,251,030
Corrugating Material	36,841	41,547	561,896
Chip & Filler Board	4,805	4,505	62,824
Total Containerboard	137,976	139,919	1,875,750
Folding	44,824	56,420	752,302
Set-Up	9,354	10,243	146,231
Special Food Board	24,981	24,929	356,664
Other	39,835	47,893	672,958
Total Boxboard	118,994	139,485	1,928,155
Total Orders	*Tons*	*Tons*	
Received	236,799	335,027	
Unfilled End of Week	382,210	404,209	

PAPER PEOPLE

G. H. Olvey

Olvey to Head O-I Board Sales

George H. Olvey, who has served as president of three different paper products companies during 30 years in the industry, has been named vice president and manager of paper sales for the Mill Division of Owens-Illinois Glass Co. In his new position, Mr. Olvey will direct the sale of all paperboard and corrugated medium produced by O-I's five paper mills.

Mr. Olvey, began his selling career in 1927 with Mid-West Box Co. in Anderson, and later became sales service manager of that company's plants. In 1932 he joined Fairfield Paper Co., supervising two box factories at Baltimore, O. In 1935 he planned and supervised the construction and equipping of a new plant for General Box Co. in Louisville, Ky.

In 1946 he resigned from General Box and organized Midwest Paper Products Co. and Olvey Bros., Inc. becoming president of both companies. He resigned from Midwest in 1948 and became sales manager of the La Boiteaux Co., in Cincinnati until 1953, when he became president of Kraftboard Sales Co. In 1955 he joined the Fox Paper Co. as director of purchases, and last year returned as sales manager for the La Boiteaux Co.

Hunter Rejoins Carter Rice

George Hunter, representative for Storrs & Bement Co. has rejoined the Carter Rice Storrs & Bement organization and will continue his sales efforts from Carter Rice Storrs & Bement's Worcester office at 76 East Worcester St.

Zando to Jax

Ado A. Zando, district engineer for the Northern New York mills of the St. Regis Paper company, will in June assume staff duties in plant engineering at the company's Jacksonville, Fla., plant.

He was first employed by the St. Regis Paper company in 1930 and worked summers until his graduation from Clarkson.

He joined the engineering staff here in 1936 and in 1942 became assistant chief engineer. He was promoted to his present position in July, 1953.

Brown-Bridge Appoints New Vice-President

Howard Murgatroyd was appointed Vice-President in charge of sales of The Brown-Bridge Mills, Inc., Troy, Ohio at a recent board of directors meeting of the company.

Mr. Murgatroyd was recently made general sales manager to succeed H. T. Blair who has retired.

The board of directors of the company headed by P. H. Bridge, Chairman also includes J. S. Shartle President, A. A. Sanders Executive Vice-President and John C. Egbert Jr. Secretary-Treasurer.

William J. Prudler, of Oakland, who has been named general manager of the Oakland Plant of National Container Corporation of California. Mr. Prudler, in addition to becoming general manager of the Oakland plant, remains as vice president and second in command of the California operations. His headquarters will be in Oakland.

C-Z Staff Changes

Recent shifts of supervisory personnel by Crown Zellerbach Corp. include:

James W. Wenger, technical supervisor, Port Angeles—to pulp supervisor, St. Francisville. Mr. Wenger will leave for St. Francisville about September 1.

Thomas C. Smyth, technical assistant to the paper mill superintendent, Port Angeles—to technical supervisor, Port Angeles.

William P. Morgan, assistant superintendent, multiwall and grocery bag plant, Port Townsend—to administrative assistant to the bag factory superintendent, Camas.

Gerald B. Harris, shift engineer, St. Helens—to steam plant foreman, St. Helens.

Blaine B. Petersen, senior industrial engineer, Camas—to section head, automatic rewinders, Camas converting plant.

Foxgrover to Join P-G

Louis Calder, President of Perkins-Goodwin Co., announces that James A. Foxgrover of Kalamazoo, Michigan, will join the Company, effective June 1, in the capacity of assistant to the president. This date coincides with Mr. Foxgrover's retirement as General Sales Manager of the Paper Makers Chemical Department of Hercules Powder Co. after thirty-nine years of service, prior to which he was affiliated with the Kimberly-Clark Corporation, Neenah, Wisconsin.

New Appointments at IP

Thomas E. Tate has been named Manager of the New Products Department and Dr. J. T. Turner has been named Manager of the Marketing Research Department of International Paper Co., according to John H. Goodwin, Director, Marketing Research and New Products Division.

Graham Paper Names Division Manager

J. L. Miller has been appointed manager of the Graham Paper Co.'s Louisville, Ky. division. A salesman for the company here for eight years, he succeeded C. E. Hager, who asked to be relieved of his duties as manager but will remain with the Louisville branch as a salesman.

Chope-Stevens Names Asst. General Manager

Glenn D. McDonald has been appointed vice president and assistant general manager of Chope-Stevens Paper Co., Detroit, Mich. He will have charge of sales and the operations under the direction of Harold L. Cowan, president and general manager.

CHIPS BURN...

BUT PAPER REMAINS STRONG AND CLEAN . . . THANKS TO CENTRI-CLEANERS

The fire in the chip bin was relatively small. Production men were worried . . . should they try to use the fire-charred chips? Would their cleaning equipment take out the carbon? It was a risk, but they charged a digester. The resulting pulp going over the bleach plant washer looked bad.

At the Centri-Cleaners, things looked much brighter. All of the bits of charred wood were being removed and the pulp was left clean. Not a pound of pulp was lost, and the resulting paper was the usual clean, high quality product.

This incident occurred in the sulphite mill of a large eastern paper company. It parallels many other stories attesting to the effectiveness of Bauer Centri-Cleaners. Do you have a cleanliness problem? Wire, write or call FAirfax 3-5501.

THE BAUER BROS. CO.

1758 SHERIDAN AVE., SPRINGFIELD, OHIO

How Much Will Our Industry Grow by 1970...

What Will be the Role of Western United States?

A. Kenneth Beggs
Manager of Industry-Wide Research
Stanford Research Institute

Here is the most recent forecasting by the author of the Weyerhaeuser Report "America's Demand for Wood, 1929-1975". This report, (summarized in the Oct. 8, 1954 issue of Paper Trade Journal) is generally considered the most authoritative job done on this subject.

In the decade since the end of World War II, the pulp and paper industry of the United States has been one of the most dynamic among our growth industries. The United States consumption of paper and board in all of their forms, and the consumption of their principal raw material—wood pulp—has increased remarkably during this period. In their principal uses as a material for writing, printing, packaging, shipping, and other personal and industrial uses, paper and board consumption increased about 42 per cent in the 1947-1957 period. **The consumption of wood pulp for the manufacture of paper and board increased about 70 per cent during the same period.**

During the past decade our domestic paper and board production has increased at a rate somewhat faster than the increase in their consumption, resulting in our domestic production in 1957 accounting for a larger share of our consumption of these products than it did a decade ago. This is in spite of an increase in our imports of paper and board of almost 27 per cent in the past ten year period —mainly in newsprint. United States production of paper and board increased nearly 45 per cent in the past decade.

The growth in capacity and production of wood pulp in the United States has been equally startling. Production in the United States increased from just under 12 million tons in 1947 to nearly 22 million tons in 1957, an increase of about 10 million tons, or nearly 83 percent, as compared with an increase of only about 7 million tons in the 1929-1947 period. During the decade since 1947, wood pulp capacity in the United States increased from just under 13 million tons to over 26 million tons, an increase of over 100 per cent. By comparison, capacity in this segment of the industry increased only about 6 million tons in the whole 1929-1947 period. Since our imports of wood pulp have remained relatively constant over the past decade, our domestic production has provided for an increasing share of our national wood pulp consumption.

An Address Presented to the National American Chemical Society meeting in San Francisco, California, on April 14, 1958

Looking at Operating Ratios

While new pulp, paper and board capacity has been added at a fantastically high rate over the past decade, this new capacity, along with the old, has enjoyed high rates of utilization. For example, the rate of capacity utilization in the paper and board segment of the industry has fallen below 90 per cent in only a single year in the past decade. The paper and board segment of the industry has operated at an average rate of utilization of about 93 per cent for the decade as a whole. This average includes the past year of 1957 in which the ratio fell to about 91 per cent. **This 1957 rate of utilization is a far cry from the average ratio for the 1929-1947 period of about 80 per cent,** and still further from the less than 75 per cent ratio that, on the average, characterized the depression years.

The wood pulp capacity of the industry has also enjoyed a high rate of utilization. In spite of the continuing competition of Canadian and Scandanavian pulps, the domestic capacity has operated at an average rate of utilization of about 89 per cent in the postwar period. **This too, is a rate that is a far cry from the less than 80 per cent average rate** that characterized the 1929-1947 period, and even farther from the less than 70 per cent rate that existed during the depression years of the 1930's.

Paper Industry Not Overexpanded

So, in spite of loud moanings that the industry is overexpanded, I do not believe that the postwar expansion of the industry's capacity in the postwar period has been either irrational or unwarranted. Nor do I think that the spectre of overcapacity has returned to haunt the industry and paint it with red ink for a long time to come. A pessimistic view of the industry can be taken only if one assumes either that our national economy, for some unknown reason, is going to fall apart at the seams, or that paper and board are going to be replaced in substantial measure by other materials. To contend that either of these assumptions is realistic is, in my view, sheer nonsense.

In defense of my conclusion that we are going to need and to have significant new increases in pulp, paper, and board capacity over the coming decade, I want to say that every time I undertake to project the future level of consumption and production of pulp, paper, and board in the

United States I come up with more optimistic estimates than before. In 1953, in **"America's Demand for Wood, 1929-75,"** otherwise known as the Weyerhaeuser report, I projected the demand and production of pulp, paper, and board out to 1975. I repeated this effort in much more detail in **"The Future for Paper in the United States,"** a report I prepared in 1956. I now feel that the projections of the future for pulp, paper and board, as reported in these studies were understated. I have recently reevaluated these projections.

Future Consumption

The rate of future consumption of paper and board in the United States over the coming decade will depend on many factors. Principal among these will be (1) the rate of growth in population of the United States, (2) the rate of increase in the purchasing power of that population, and (3) the rate at which prices and quality of paper and board increase relative to those of other materials that typically compete with paper and board in their many and varied uses.

The increase in paper and board consumption over the past quarter of a century has been accounted for principally by the increasing size and value of markets for the services offered by the types of end-products in which paper and board can be and have been used. The changes that have occurred in the size of the population and the level of economic activity of the nation are sound barometers of these changes in market size. Moreover, changes that have occurred in the size of the national population and in the level of economic activity of the nation account very well for changes in the past rate of consumption of the various types of paper and board, as well as for changes in consumption of total paper and board. The problem posed, then, is what may we reasonably expect with respect to growth in population and changes in the level of economic activity in the United States over the coming decade or so, as indicators of what we may reasonably expect with respect to the future consumption of pulp, paper and board over the same period.

In projecting our economy out for the next decade or so, we are, of course, bypassing that currently popular indoor sport of guessing as to when and how shall we pull out of the current dip in business activity. **Suffice it to say here that the current dip is a timely reminder that while the path of our economy is assuredly upward we must never assume that periodic dips in our economy are wholly a thing of the past.** Any projection of our economy must necessarily be based upon the expectation of short-term upward and downward swings in the economy, with the swings tempered in each direction by policies of government, industry, labor, and agriculture that will reflect the responsibility of each for insuring our long term continued growth on sound economic bases.

How Big in 1965 and 1975?

Based on continuing studies at Stanford Research Institute of likely long term changes in the size and level of activity of our economy and its principal sectors, we expect that by 1965 our national population will gain another 13 per cent over its 1957 level, reaching a population in 1965 of nearly 191 million people, and by 1970 a population of about 205 million. We estimate, further, that by 1965 this population will have an income, as a measure of economic activity, about 25 per cent greater than it was in 1957, and that by 1970 economic activity will be close to 18 per cent higher than in 1965. This is tantamount to saying that we expect the level of business activity about 12 years hence to be about 50 per cent higher than it was during the past year.

Based on these projections, and the things that they imply, we estimate that **paper and board consumption in the United States by 1965 will be about 49 million tons, an increase of about 40 per cent over consumption in 1957. By 1970 we expect this consumption to rise to about 58 million tons, an increase of about 66 per cent over 1957.** On these data, we expect the consumption of paper and board to increase about 2 million tons more over the next 7 years than it has in the past 10 years, and to increase in the next 12 years as much as it has in the whole period from 1929 to 1957.

Disposing of the Contentions

Against this optimistic outlook it might be contended that **paper and board consumption in the past was partially accounted for by relatively low prices and use-cost,** and that future projections must not assume that the same price relationship between paper and board and their competing materials will continue in the future as in the past, particularly in view of the decreasing availability of timber resources for meeting all the wood requirements of the nation. It might also be contended, in opposition to such an optimistic projection, that much of the increase in past consumption of paper and board has resulted from these materials displacing other materials in end-product uses, and that **it cannot be expected that paper and board can continue to displace other materials at past rates.**

Actually, neither of these contentions are valid objections to an optimistic outlook for growth in consumption of paper and board over the coming decade. With respect to the first contention, consideration of the factors that will tend to influence the future supply of paper and board, and particularly the factor of wood supply, leads us to the conclusion that **there does not appear to be any bar to the industry's supplying paper and board in the future at prices no higher relative to the general level of prices or relative to the prices of competing materials than they have been in the past.** The production of paper and board increased during the past at a faster rate than did their prices, and in spite of the fact that their prices increased at a rate somewhat faster than those of all commodities in the economy taken together. Moreover, production of paper and board has increased faster in relation to their price increases than did, for example, lumber, a material that competes with paper and board for both raw materials and important end-product markets.

With respect to the second contention, paper and board have displaced competing materials in many uses through time, but these displacements have not occurred at one fell swoop; rather, the process of shifting to and from the use of paper and board in end-product manufacture has been a continuous process. The past relationships between the growth in consumption of paper and board and the changes in the size and activity of the national economy have built into them this continuous process of shifting material use to and from paper and board. **This process of shifting the materials base of manufactured products goes on daily, and will continue to do so.**

New Uses Outlook

Paper (other than writing and printing paper) and board do not have the whole material market in any of their principal uses; there are many new uses to which they can and will probably be adapted depending upon relative economies of their use, changes in technology, rate of development of new products, and changes in the availability of other materials. Moreover, as the consumption of new and old products in which paper and board are used increases, so will the consumption of paper and

board; and the increases in consumption of these end-products will tend to change with changes in the size and activity of the national economy. There is no reason to conclude that the consumption of paper and board in the future will be any less because of fewer uses remaining in which displacement can take place. The growth in consumption of end-products in which they are already used are probably of more importance to their total consumption than are the incremental number of end uses in which they can, and will, displace other materials.

Whither Paper Imports

Although it is expected that paper and board consumption in the United States will increase by about 14 million tons by 1965, and by about 23 million tons by 1970, **it does not follow that these increases will be wholly met by United States production.** A significant portion of this future consumption will be met by net imports of paper and board from foreign countries, particularly Canada.

The United States has been consistently self-sufficient to a large extent in all paper and board with the exception of newsprint. Our newsprint imports, principally from Canada, have constituted over 95 per cent of our paper and board imports. With the opportunity for production expansion due to the growing demands of the nation for paper and board, and the resource availability with which to carry out production expansions, continuous growth in domestic capacity is a virtual certainty. It is unlikely that imports of paper and board other than newsprint will become significantly large as a result of either relative lower prices of foreign supplies, taking into account the tariff situation, or the inability or unwillingness of domestic producers to increase production capacity. It is expected, however, that Canada will continue to be the principal supplier of newsprint for the United States, since, **although the paper machines of the United States industry could physically produce the required quantity of newsprint, the use of these machines to produce enough newsprint to preclude Canadian imports would, at the relative prices of newsprint, decrease the profitability of machine use.**

The United States continues to be a net importer of paper and board, principally because of the newsprint situation, even though our exports of paper and board have increased about 90 per cent in the last decade. While the ratio of net imports to consumption has been declining somewhat, over the longer term we do not foresee much change in its past average relationship either as a result of increased domestic production of newsprint and increased export of paper and board from the United States. On balance, we expect that the **net imports of paper and board into the United States will increase in tonnage from nearly 5 million tons in 1957 to nearly 7 million tons in 1965, and to over 8 million tons in 1970.**

Deducting these net imports from our projected consumption of paper and board means that we expect that in 1965 there will be about 42 million tons, and in 1970 about 50 million tons of paper and board produced by the domestic industry.

These expected levels of production of paper and board by the United States industry **indicate an increase in domestic production of about 37 per cent between 1957 and 1965, and of about 19 per cent between 1965 and 1970.** The gap between present production and those projected for 1965 and 1970 represents our estimate of an opportunity for further expansion of capacity by the United States paper and board industry over the coming decade.

Required Pulp Production

The increases in domestic wood pulp production that will be required to produce the estimated domestic output of paper and board in 1965 and 1970 and to produce the nonpaper and board products made from wood pulp, will depend on several factors. Principal among these will be the extent to which we import wood pulp from Canada and Scandanavia, and the pulp furnish used for each type of paper and board. We will concentrate here on the increase in domestic wood pulp production that will be required for paper and board production, since the wood pulp used for the production of rayon and other nonpaper and board products characteristically accounts for only about 5 per cent of the total wood pulp consumed by the United States.

Based upon the probable wood pulp consumption per ton of product for future years, the estimated future domestic production of paper and board by type, and the estimated domestic production of nonpaper and board products from wood pulp, it is estimated that **domestic wood pulp consumption in 1965 will be about 33 million tons, and in 1970 about 39 million tons,** reflecting increases in wood pulp consumption over 1957 of about 40 per cent by 1965, and increase of about 66 per cent by 1970.

The United States has historically been a large net importer of wood pulp, principally from Canada and Scandanavia. The reasons underlying the imports of wood pulp by the United States, and the exports of wood pulp by these countries, lead to the conclusion that **the United States will continue to be an importer of this commodity for some time to come.** However, some marked changes in this factor have been occurring in the past few years. Although, the nonintegrated paper and board producers in the United States have offered a continuing market for imported pulp, the share of the total paper and board market accounted for by such producers is declining, and it is expected to continue to decline, which would tend to decrease the size of market for market pulp. At the same time, however, **an increasing share of our total imports of pulp from Canada is accounted for by captive pulp,** i.e., imported by domestic companies that also produce their wood pulp in Canada. On balance, it is expected that **our net imports of wood pulp will continue out into the future and amount to about nearly 3 million tons in 1965 and about 3.5 million tons in 1970.**

The wood pulp requirements for domestic production, taken together with the expected import-export balance, indicates that there will be a lot of room for expansion of the domestic wood pulp industry over the next decade. It is expected that we will have an increase in domestic production of wood pulp between 1957 and 1965 of over 8 million annual tons, an increase of about 38 per cent, and an increase between 1965 and 1970 of another 6.4 million tons, or an increase in that period of about 21 per cent.

More Pulpwood Will Be Needed

An increase in domestic wood pulp production of this size will require a very significant increase in the amount of pulpwood to be drawn from the forests of the nation. Taking into account the differences in pulpwood consumption per ton of the different types of pulp, and the amounts of each type of pulp that will be used in the production of the different types of paper and board and other pulp products, it is estimated that the **pulpwood requirements in 1965 will amount to about 3.4 billion cubic feet of solid wood,** an increase af about 38 per cent over the nearly 2.5 billion cubic feet consumed in 1957, **and in 1970 about 4.1 billion cubic feet, an increase over 1957 of about 67 per cent.**

Whether or not the projected levels of consumption and production of pulp, paper, and board can be attained

in the future **will depend in large measure upon whether or not conditions of production will be such that the prices of pulp, paper, and board can be kept in about the same relationship to the prices of competing materials** and the general level of prices as in the past. Since pulpwood is the basic ingredient for the production of wood pulp, paper, and board, and since the cost of wood may account for from 20 to 30 per cent of the total cost of an integrated producer of paper and board, the **availability of pulpwood at prices the industry can afford to buy will be a primary determinant** of the relative growth of pulp, paper, and board production that will occur in each region of the nation over the coming decade.

While it is expected that pulp and paper production will be expanded in each of the regions of the nation in the coming decade, the **relative rates of increase in production will vary significantly as between the regions.** The largest relative growth in pulp, paper, and board production can be expected for those regions that combine large wood resources with current deficits of regional production as compared to regional consumption of pulp and paper and that promise large future increases in regional consumption of pulp and paper. Measured in these terms it is expected that **the western part of the United States will have the largest growth in pulp, paper, and board capacity** and production of any of the regions of the United States in the coming decade.

West Has Most Wood

The West not only accounts for the largest reservoir of total timber supplies of any region in the United States, but also the largest percentage of the live sawtimber cut for forest product manufacture in the nation. The West has about 55 per cent of the total growing stock of timber on the commercial forestlands of the United States. Its relative position is even greater in terms of live sawtimber; the region has about 68 per cent of the live sawtimber of the nation. Further, the predominance of the West in terms of timber supplies is based on its large volume of softwoods, which is the most used species in the nation for forest product output. The West accounts for about 78 per cent of the total softwood growing stock and about 85 per cent of the live softwood sawtimber volume of the nation.

Not only does the West occupy the predominant position among the regions of the United States in terms of timber volume of growing stock, but also in other forest material equally useful for the production of wood pulp. For example, **the West has about 98 per cent of the nation's inventory of softwood salvable dead tree volume,** and about 68 per cent of the softwood cull trees of the nation.

The timber supplies of the West, unlike those of the North and South, are predominantly in large-diameter trees. Having the largest stands of large-diameter sawtimber in the nation, **the West has, by the same token, the largest quantity of high quality timber in the United States.** It is because of the region's large stands of high quality timber that it accounts for virtually all the softwood plywood and veneer production and over 54 per cent of the lumber production in the United States. It is expected that this percentage will continue to rise through time. This is particularly important because in addition to the forests themselves as a source of wood for the manufacture of wood pulp, the wood residuals generated by lumber and plywood mills are also a valuable source of raw material for pulp production. The West accounts for about 43 per cent of the nation's production of these residuals.

The West is already the largest using region of mill residuals for the production of wood pulp, and it is expected that the amount of residuals used in the region as pulpwood will increase more than in any other region of the nation. Because of the leading position of the West in lumber, plywood, and veneer production the region has a great capacity in terms of raw materials for supporting an expanded wood pulp industry without the new capacity necessarily relying upon logs and bolts for wood.

Pulp in West Unbalanced

Large increases in the pulp and paper capacity of the West can be expected over the coming decade not only because the region's pulp production is far out of balance with its available wood supplies as compared with other regions, but also because its production of paper and board is also out of balance with its consumption of paper and board and their products.

In spite of its tremendous advantage as an economical source of wood supplies, **the West is the smallest pulp producing region in the nation.** It has only about 17 per cent of the pulp plants in the nation, and about the same percentage of the nation's wood pulp capacity. By comparison, the South has about 28 per cent of the plants, and 53 per cent of the capacity, with the balance in the North. In terms of production, the West in 1957 produced only about 19 per cent of the nation's output of wood pulp, while the South produced about 55 per cent, and the North about 26 per cent of the total.

Paper and Board Importer

This imbalance is even more pronounced in paper and board production. Even with its relatively low percentage of pulp production as compared with its large wood resources, the West converts only about 70 per cent of its pulp production into products; the balance is sold out of region as market pulp, so that **the West is the largest market pulp producing region in the nation.** The relationship of the pattern of paper and board production in the West to regional consumption of these products is significantly different than this relationship in the North or South. While there has been a marked tendency for production in each of the latter two regions to specialize in various types and grades of paper and board as a basis of interregional trade between them, the West has tended to have a more even distribution of its production among the various types and grades of paper and board and less specialization in production. As a result, **the West is a net importer of virtually all types of grades of paper and board and/or their products.**

The West has had the fastest rate of growth in terms of population and regional income of any region in the United States in the 1929-1956 period. Population of the region increased more than 105 per cent in the period, as compared with an increase of just over 30 per cent for the rest of the nation. Personal income in the West, as a measure of its increase in economic activity, rose about 237 per cent during the period, compared with an increase of about 119 per cent for the rest of the nation. During the same period, paper and board production in the West increased about 278 per cent, increasing from about 900 thousand tons in 1929 to about 3.6 million tons in 1956.

Outlook for the West

The West now accounts for about 14 per cent of the population and about 16 per cent of the personal income of the nation. At the same time, **the region accounts for less than 12 per cent of the paper and board production of the nation.** Since the factors of income and population are sound barometers of the relative consumption of paper

and board, it can only be concluded that the West consumes a disproportionately large amount of these products as compared with the regional production of them. This is borne out, of course, by data that show an excess of paper and board imports into the region over the exports of these products out of the region.

Looking into the future growth of the western economy, it is expected that the West will have a faster rate of growth of population and income than the other regions of the nation in the coming decade. It is expected that the population of the West will increase from its 1956 level of about 24 million to about 30.6 million in 1965 and 34.6 million in 1970. On this basis, the population of the West will increase from about 14 per cent of the nation's population to over 15 per cent in 1965, and to nearly 17 per cent in 1970. We also expect that the income of the West will so increase that by 1965 it will account for nearly 18 per cent of the nation's income, and by 1970 about 18.6 per cent of the nation's income, as compared to its 1956 share of about 16 per cent.

With the increases in growth foreseen for the national economy for the coming decade, even if the West should only maintain its present share of the national production of paper and board we can reasonably expect that regional production of paper and board will increase from its 1956 level of about 3.6 million tons to about 4.9 million tons in 1965, an increase of about 36 per cent, and to about 5.8 million tons in 1970, an increase of over 60 per cent.

This relationship of the West to the national output is, in my opinion, overly conservative. Taking all things into account, I cannot escape the conclusion that over the next decade the integrated producers of the nation will not be able, with sound economic judgment, to resist the lure of the growing western market for pulp, paper and board lying in close proximity to the largest reservoir of wood resources in the nation, available not only for conversion into products for the western market, but for export to other parts of the nation as well.

It is probably more realistic to anticipate that the share of the national production of paper and board accounted for by the West will increase and more closely approximate the region's share of the nation's people and income. I do not think that an estimate of **western production of paper and board of about 5.5 million tons in 1965, an increase of about 53 per cent, and about 6.5 million tons in 1970, an increase of about 80 per cent over 1956 levels** is at all unreasonable.

What You Should Know About The Replacement of Anti-Friction Bearings

C. V. Borho,
Service Dept., Caterpillar Tractor Co.

Anti-friction bearings are often ruined or discarded needlessly. You can save money by following these few service suggestions.

There are five basic types of anti-friction bearings. Each has a specific application although uses often overlap. The choice of a bearing used in original equipment is, quite naturally, up to the designer of the assembly of which it is a part. When replacement becomes necessary, it's very risky to use *any* bearing just because it fits a shaft and bore. To guard against this possibility, consult the manufacturer's up-to-date Parts Catalog and install bearings by part numbers. Installing a "will fit" bearing is asking for trouble.

Why They Fail

Foreign matter and lack of lubrication are the most frequent reasons why bearings fail. When installing a new bearing handle it with care. During manufacture and storage, bearings are protected with a coating of lubricant and packed inside a paper wrapper. This lubricant should not be washed from the bearing. It is virtually impossible to wash a bearing as clean as it was when the manufacturer lubricated it. After all, bearings are made in dirt free surroundings.

Keep bearings in their original packaging until you are ready to install them. Touch the bearing as little as possible because perspiration starts corrosion. Use clean lint-free rags. Never use cotton waste to wipe a bearing or its mating surfaces. Cleanliness counts in bearing handling.

Handling Used Bearings

Serviceable used bearings also require special handling. Take time to examine the assembly. Countless bearings have been ruined because someone didn't know how to take the assembly apart and put it back together. Bearing pullers or an arbor press are handy items to have when removing or installing bearings. Improvised tools will work, but it is essential that considerable care be taken to avoid damage. When a piece of equipment is taken apart, the bearings should stay with the member to which they are tightly fitted. In the case of bearings which are made with separable parts—inner ring, outer ring and ball or roller assembly—both rings may often fit tightly. Always determine whether it is best to press or pull on the race or cup when the bearing is tight on the shaft or bore. Press or pull straight and square to keep the ring from cocking. A cocked bearing can easily score the shaft or housing or cause damage to the bearing itself. Never press or pull against bearing shields or separators. Remember that in most cases a bearing *can* be reused—if you remove it correctly.

Reasons for Replacing

After the bearing has been removed, wash it in a solvent until it is absolutely clean. Next, determine if it is still serviceable. Here are the reasons for replacing a bearing.

1. Broken or cracked rings.
2. Dented seals or shields.
3. Cracked or broken separators, balls or rollers.
4. Flaked areas on balls, rollers or raceways.
5. Bearings which have been overheated. Overheated bearings are generally darkened to brownish blue or blue black.
6. Bearings with dented or "brinelled" raceways.

If the bearing is determined to be serviceable, apply a coating of light grease or other protective lubricant. Rotate the bearing slowly to make sure all surfaces are completely lubricated. Wrap in clean paper with the bearing's identification clearly marked on it. This will eliminate unnecessary handling.

Key Points

In summary, remember these key points. Don't throw away serviceable bearings. Use the *right* bearing as listed in the manufacturer's current parts catalog if replacement is necessary. Keep bearings clean, exercising care during installation and removal to avoid damage.

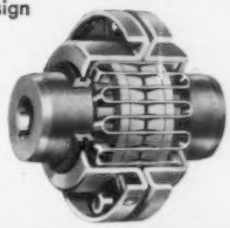
How one FALK coupling saved more than $1,000 per month

Pictured below is a Falk Steelflex Coupling assembly which connects a 2500 hp motor to a reduction unit driving an 18″ bar mill in a Midwestern steel plant. This coupling replaced another type which broke repeatedly, causing maintenance expense averaging $1,000 a month—plus costly production losses. Since installation of the Falk Coupling, with its controlled torque mechanism that disengages when a predetermined overload occurs, there has been no interruption of production. Savings in maintenance and in lost production time are well in excess of $1,000 per month...dramatic proof of the importance of coupling design!

Long coupling life is not the sole criterion of coupling performance. Inadequate shaft couplings may be the cause of bearing damage or shaft breakage on your machines. If so, a change to Falk Steelflex will give twofold protection to your connected machines: (1) compensation for reasonable degrees of shaft misalignment, and (2) torsional resiliency to reduce peak loads as much as 30%. These advantages are as important to you as the long service life of the Falk Steelflex Coupling itself.

Falk Steelflex Couplings, in types and sizes to meet virtually all industrial applications, are promptly available from distributor, warehouse and factory stocks. Consult your Falk Representative or Authorized Falk Distributor.

Basic **Type F**—cutaway view showing exclusive grid-groove design



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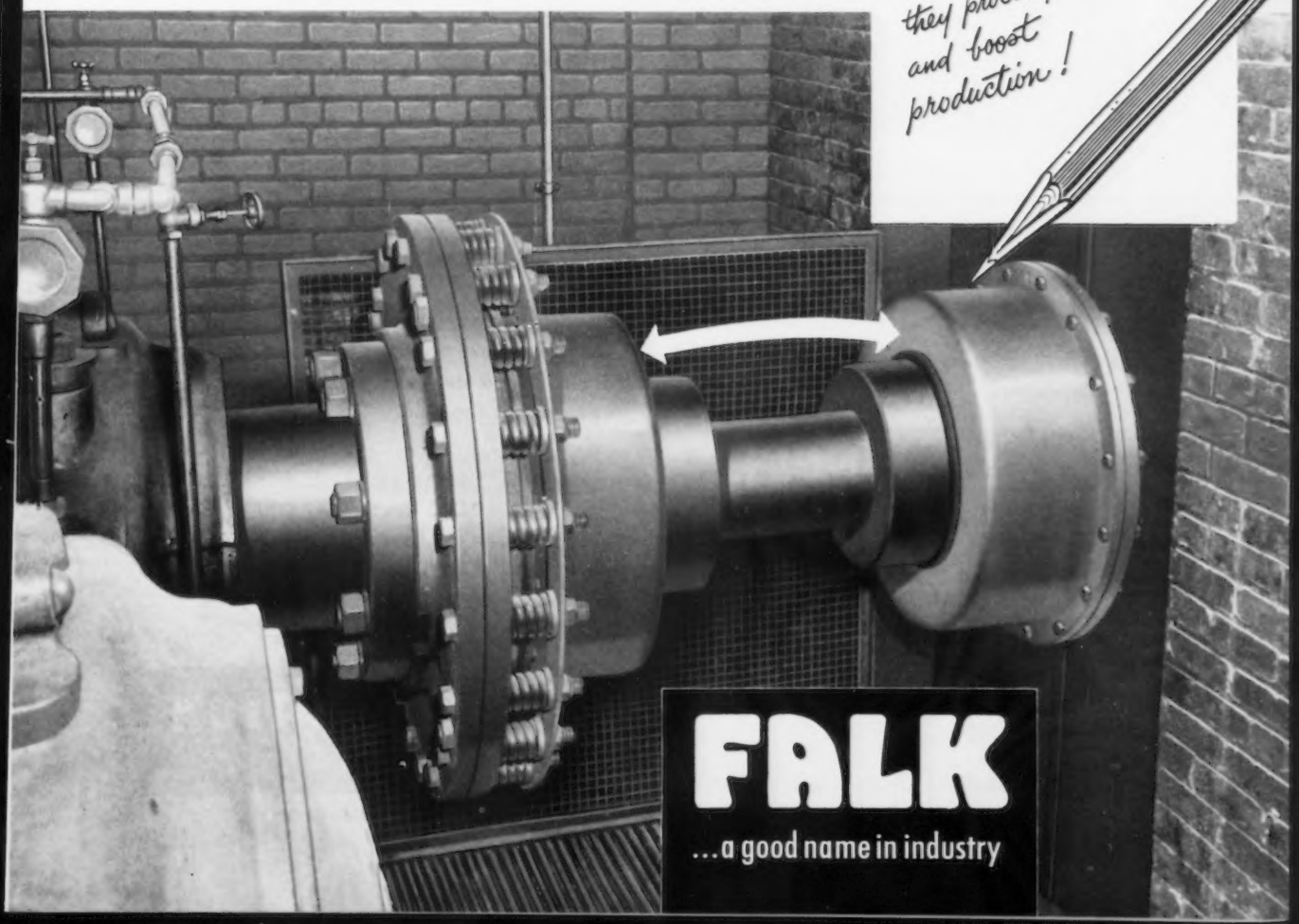

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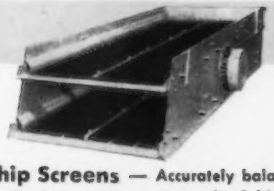

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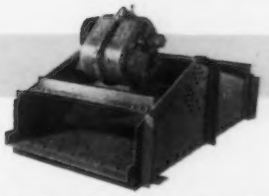


***Low-Head* pulp screens** handle high consistencies, save water and power. Maintenance is simple. Mechanism can be removed as a unit.

Use of Optics in Erection of Abitibi's New Paper Machine

Simple technique established levelness and coplanarity, and in 20 minutes set-up was double checked for accuracy.

A. J. Conley
Technical Instrument Divisions
Keuffel & Esser Co.

The performance, at initial startup, of a paper machine designed and guaranteed to run at speeds of 3000 feet per minute and greater, depends to a large extent on the accuracy with which its individual components are aligned during erection. At the Fort William plant of the Abitibi Power & Paper Co., Ltd., this basic critical alignment is being accomplished with optical equipment. The optical system and principles were developed by the Keuffel & Esser Co. in cooperation with the machine designer and builder, the Beloit Iron Works of Wisconsin. The Foundation Company of Canada, Ltd. are the construction and erection contractors.

The alignment of a paper machine can be divided into two general spheres of responsibility:

1) The positional relation of roll and dryers one to the other within the individual frame section clusters.

2) The subsequent positioning of the frame sections on the foundation plates or sole plates.

This discussion is principally concerned with the latter.

Frame positioning can also be separated into two somewhat separate problems:

1) Laying and grouting the sole plates so that the top surfaces lie in a common flat level plane.

2) Scribing pairs of index marks on the sole plate surfaces so that a line joining each pair (commonly called a square line), intersects the center line of the machine at a precise right angle; there being generally as many square lines as there are frame sections.

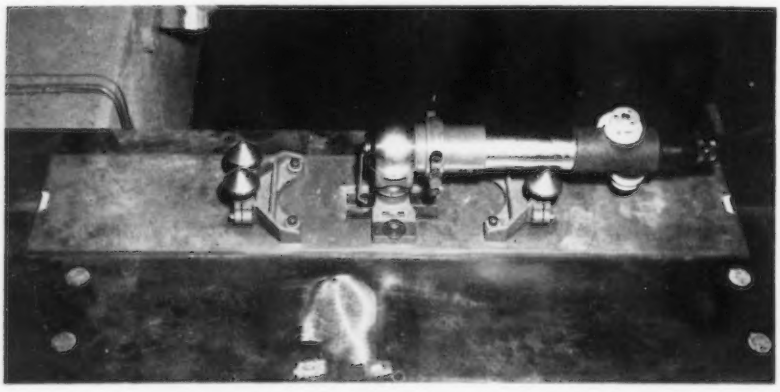


Figure 1 — The optical square & telescope are positioned along the scribed parallel line in preparation for sighting to the base line target.

Sole Plate Leveling

The paper machine rests on two rows of cast iron plates, each plate being approximately four feet long x eighteen inches wide. The plates are laid end to end to form the foundation pad. The two rows of plates are separated by a central longitudinal pit. The separation of the rows depends on the width of the machine. At Fort William, this separation amounted to 276 inches.

Until recently, the leveling of the sole plates was accomplished using machinist spirit levels and parallel bars or straightedges. It is apparent that a spirit level placed on any one plate will indicate that it is level, but will not indicate whether its top surface lies in the same plane as the other plates along the length of the foundation pad. The optical method will not only establish and check both levelness and coplanarity, but the technique is remarkably simple. The leveling equipment required, consists of a precise optical sight level equipped with an optical micrometer. This instrument is used in conjunction with two scales graduated to an accuracy of 0.001". All of this equipment is commercially available.

The sight level sweeps a flat level plane from which displacements can be read to 0.001". The top surface of all sole plates should be displaced precisely the same amount from this level reference plane. This principle is the same as that which would apply if an enormous granite surface plate were supported in a level attitude over the entire foundation with displacement readings being made from it to the

sole plates by means of a conventional mechanical micrometer reading to 0.001".

Not only is the optical leveling procedure simple, but it is extremely fast. On the Abitibi machine the sole plates were set optically and the savings in labor alone amounted to 27% compared to the conventional method—and the results could be checked.

Laying The Square Lines

Everyone will recall the geometrical problem of constructing a perpendicular to a line. Euclid's procedure consisted of:

1) Sweeping an arc with a compass, the point of which rests on the line at the point where the perpendicular is to intersect.

2) From the two points of intersection of this arc with the line, two more arcs of greater radius are drawn —a line joining the intersection of these two arcs and the original point is a perpendicular. This method is still used today for establishing square lines on paper machine foundations, albeit on a much larger scale than the young geometry student would be likely to visualize. The compass required for a paper machine must be of a size exceeding the width across the machine.

As the width of modern paper machines has increased, the size of the compass or trammel required has grown. This growth has resulted in an instrument exceedingly heavy and unwieldy. In addition, the very size of the trammel has jeopardized the required accuracy to which the square lines must be established. An optical method is now available which replaces the ponderous trammels completely—this method was used for the first time in laying off the square lines on the Abitibi machine. The ease with which this job was accomplished and the accuracy of the results was impressive.

Once the Abitibi sole plates were leveled and grouted, a single line was scribed along one lone of plates from one end of the machine to the other. This line is generally referred to as a parallel line and is used as a guide for

Figure 2—Target! The bulls-eye is inside.

setting the frame sections transversely. Along this line, a series of marks are established with a tape and center punch. These punch marks establish the longitudinal position of the various frame sections on the foundation pad. The positional tolerance of these punch marked stations is relatively coarse (±1/16"), but once each position is set, it must be perpendicularly transferred to the opposite plate with a precision measured in thousandths of an inch. This accuracy is required due to the fact that the ultimate track of the paper in the process is very sensitive to the parallelism of the rolls and this parallelism depends primarily on the accuracy of the square lines.

Optical Square And Telescope

The optical apparatus for establishing the square lines consists of:

The Optical Square and Telescope cradled in a special bracket, (Fig. 1), and a base line target (Fig. 2).

The telescope, is of the alignment type widely used in airframe tooling. It has a precisely ground barrel and is equipped with a horizontal and vertical optical micrometer reading directly to 0.001" with the focusing range from zero inches to infinity. The optical square contains a pentaprism mounted in a hardened steel sphere. The pentaprism has the unique property of reflecting the line of sight at a right angle, accurate to better than one second of arc, no matter how it is rotated. In addition, a straight through sight can be made. The apex of the square formed by the right angle and straight through sight is set directly at the center of the sphere. If the straight through line of sight can be aligned parallel to the base line, then the right angle line of sight will be perpendicular to the base line. If the apex of the square can be set directly over the station mark on the sole plate, then by sighting through the right angle, the companion station on the opposite plate can be established, (Fig. 3). The mechanical design of the telescope bracket and base line target provides the means for orienting the optical square on the base line in this required position.

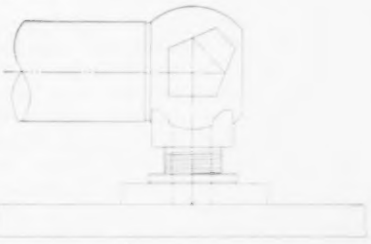


Figure 4—This hollow centered sphere support is employed to position the optical square directly over the station mark.

Base Line Bracket And Target

An examination of Figure 1 will show the index lines at either end of the bracket aligned to the scribed parallel line. The cup holding the sphere is located and doweled in such a position that the center of the sphere lies in a plane containing the two bracket index marks, the plane being perpendicular to the base of the bracket.

The center of the base line target is similarly set in relation to its index mark with the target height equal to the sphere center height.

As mentioned above, the apex of the optical square is at the center of the sphere. This has significance in that the center of the sphere or ball is the only point that does not move when the sphere is rotated. It is most important that the apex of the square remains stationary over the station mark on the sole plate and this spherical property guarantees this condition.

The first step in setting up the optical square is to position the apex directly over the station mark. This is done by sighting down directly onto the sole plate through the hollow center of the

Figure 3—Sighting, to establish sole plate positions.

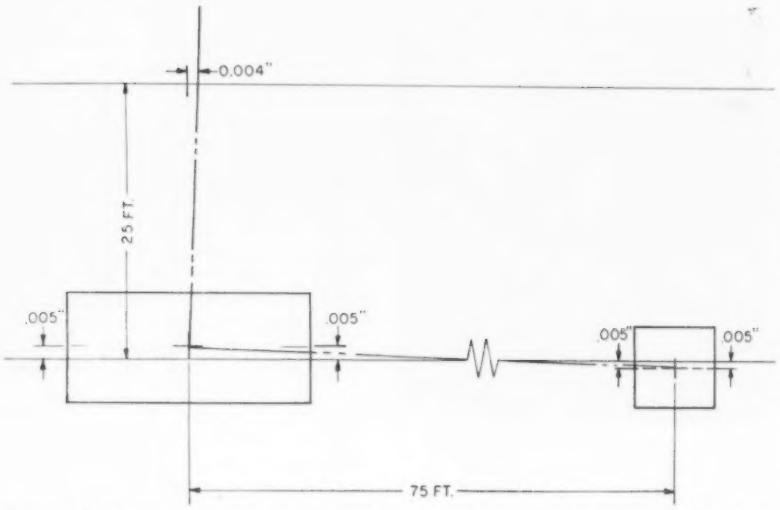


Figure 5—Maximum error of the K&E system: 0.006"—"a tolerance difficult to achieve by conventional mechanical methods."

sphere support (Fig. 4). Through the eyepiece of the telescope the magnified punch mark can be observed in the focal plane containing the cross hairs. By adjusting the optical micrometer, the transverse cross hair can be shifted until it splits the punch mark; this effect is the same as though a mechanical square were slid along the plate until its corner rested on the mark.

It is now necessary to rotate the mechanical square about its corner until its long leg lies exactly on the parallel line. This adjustment is made to the optical square by sighting straight through the telescope at the bulls-eye on the base line target and then swiveling the telescope about the sphere center (the optical square apex) until the cross wires split the bulls-eye when both micrometers are set at zero. Note that the swiveling motion does not move the apex of the optical square off the station. This completes the orientation of the optical square. To set the station on the opposite plate, the telescope and square are rotated about their own axis until the right angle line of sight picks up the opposite plate. The station reading is reset into the transverse cross wire micrometer and the punch is signaled in until its point is centered on the transverse cross wire. This procedure is repeated at each station.

Checking Accuracy Of Results

To make a quick check on the punch mark the telescope is reset in its bracket to point in the opposite direction and the base line target is repositioned on the parallel line so as to intercept the new line of sight. The optical square is reoriented above the station mark as described above and the station mark on the opposite plate is examined. If the work has been properly carried out, no error in the position will be noted.

The total time required to lay out and check a square line in this manner is approximately 20 minutes and requires only one man until it is time to set the mark on the opposite plate.

Once all the lines have been laid off, the ultimate check on the work can be made. This involves back sighting from each station on the far plates using the same procedure as outlined above. Any errors checked off and picked up at this point indicate that the two parallel lines are not parallel.

The accuracy yielded by this optical method should be examined. The length of the straight through sight and the positions of the telescope bracket and base line target on the parallel line are the two factors primarily responsible for the final positional accuracy. It has been determined that the bracket and target indices can be superimposed on the scribed parallel lines to within 0.005" with the unaided eye. Figure 5 shows the worst condition that can prevail between the two brackets. Using a base line of 75 feet between telescope and target, the angular error introduced is 0.010" in 75 feet, or approximately three seconds of arc. This error, projected across a 25 foot wide machine, amounts to approximately 0.004". Adding another 0.002" to take into account other random errors brings the total to 0.006"—a tolerance difficult to achieve by the conventional mechanical methods.

Looking Ahead

There is every indication that the uses for optical alignment and checking equipment will continue to multiply in the paper industry. Methods are now being studied by Keuffel & Esser for the realignment of older machines. These methods will be based on the general principles already proven in new construction.

Unquestionably there are many paper machines operating today whose speed is limited by their alignment, or perhaps more correctly, their misalignment. The development of optical apparatus which can be applied to the job of checking this alignment correctly and which will produce results of unquestioned accuracy, should prove to be a boon to the industry.

"He's from the South — refuses to have anything to do with a Yankee drier!"

PRICES OF FIBERS

MARKET WOOD PULP

SECOND QUARTER CONTRACT PRICES PER SHORT AIR-DRY TON

Delivered Basis

	U.S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$82.50/ 90.00	$82.50/ 90.00	§$90.00/ —	§$90.00/ —	§$90.00/ —
Bleached Gw'd.	$97.50/100.00	$97.50/100.00			
Kraft, Blchd.	157.00/ —	160.00/162.50	§157.00/162.50*		§157.50/ —
Kraft, Blchd. Hdwd.	152.00/ —		§137.00/ —		
Kraft, Semi-bleached	140.00/ —	140.00/ —			
Kraft, Unbl.	117.50/125.00	125.00/130.00	†125.00/130.00	125.00/ —	
Sulphite, Blchd. ...	155.00/ —	155.00/ —	*155.00/ —	*155.00/ —	155.00/ —
Sulphite Bl. Hdwd.	150.00/ —				
Sulphite, Unblchd. .	135.00/ —	135.00/ —	†135.00/ —	*130.00/ —	
Sulphite, Unb'l. Gl'sn		134.00/ —	†134.00/ —		
Soda, Blchd.	147.00/150.00	150.00/ —			

§ On Dock Atlantic Ports. * Freight allowed. † Varying Freight Allowances

WASTE PAPER MARKET

Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York	Boston	Chicago	Los Angeles
	April 21	April 21	April 21	April 21
No. 1 Mixed Paper	$5.00/ $7.00	5.00/ 7.00	4.00/ —	12.00/ —
No. 1 News	13.00/ 14.00	14.00/ —	14.00/ —	12.00/ —
Overissue News (Lg. size)	13.00/ 16.00	11.00/ 14.00	19.00/ —	16.00/ —
Mill Wrappers	11.00/ 13.00	12.00/ 14.00	7.00/ —	13.00/ —
Old Corrugated Containers	21.00/ 22.00	20.50/ 21.00	19.00/ —	20.00/ —
Super Resorted Kraft Paper ...	30.00/ 35.00	35.00/ 45.00	35.00/ —	45.00/ —
New Double Kr. Ld. Corr. Cuts	25.00/ 30.00	30.00/ 32.50	32.50/ —	30.00/ —
(Semi-chem. medium)	40.00/ 45.00	37.50/ 45.00	40.00/ 45.00	35.00/ 45.00
New 100% Kraft Corr. Cuts ...	50.00/ 55.00	50.00/ 55.00	55.00/ —	45.00/ —
New Br. Kraft, Env. Cuts	65.00/ 70.00	70.00/ 75.00	55.00/ —	50.00/ 55.00
New Br. Kr. Bag Waste Prntd.	55.00/ 60.00	55.00/ 60.00	50.00/ —	45.00/ 50.00
New Br. Kr. Bag Waste Unprintd	60.00/ 65.00	65.00/ 75.00	65.00/ —	45.00/ 50.00
No. 1 Groundwood Shvs.	23.00/ 27.00	24.00/ 30.00	14.00/ —	25.00/ 30.00
White Newsblanks	47.00/ 52.50	45.00/ 53.00	35.00/ —	55.00/ —
No. 1 Soft White Shvs.	55.00/ 60.00	60.00/ 65.00	55.00/ —	— / —
Super Soft White Shvs.	65.00/ 75.00	75.00/ 85.00	65.00/ —	— / —
Hd. White Shvs.	90.00/ 95.00	100.00/110.00	90.00/ —	85.00/ 90.00
Hd. White Env. Cuts	115.00/120.00	118.00/125.00	100.00/ —	100.00/110.00
Col. Tab. Cards	50.00/ 55.00	55.00/ 60.00	47.50/ —	37.50/ —
Manila Tab. Cards	60.00/ 70.00	70.00/ 75.00	65.00/ —	75.00/ —
No. 1 Col. Ledger	28.00/ 30.00	30.00/ 35.00	40.00/ —	20.00/ —
White Ledger	42.50/ 50.00	45.00/ 50.00	52.50/ —	35.00/ —
Mixed Book & Mag.†	15.00/ 18.00	17.00/ 19.00	12.00/ —	— / —
No. 1 Books‡	19.00/ 23.00	20.00/ 22.00	27.50/ —	— / —

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% of groundwood.

NEW YORK RAG MARKET

PRICES NOMINAL

New Domestic Cotton Cuttings

Delivered Mill Basis

	Per 100 lbs.
No. 1 White Shirts	$13.50/$14.50
No. 1 Unblchd. Muslins	16.00/ 17.00
Blchd. & Unblchd. Underwears	15.00/ 16.00
No. 1 Light Cream Silesias	12.00/ 13.00
No. 1 Light Blue Overalls	6.50/ 7.50
Percales	6.00/ 6.50
No. 1 Light Prints	5.00/ 5.50
Suntan Khakis	5.75/ 6.75
Cottonades	3.00/ 3.50
No. 1 Washables	2.50/ 3.25

Old Domestic Cotton Rags

Delivered Mill Basis

	Per 100 lbs.
Mixed White	$3.25/$3.75
Cotton Pants & Overalls	2.25/ 2.75
Twos and Blues, Repacked	2.00/ 2.50
No. 2 Roofing	.60/ .75

OLD ROPE & BAGGING

(Prices to Dealers, f.o.b. N.Y.)

	Per 100 lbs.
New Burlap Cuts	$4.50/$5.50
Scrap Burlap	3.50/ 4.25
Australian Wool Pouches	5.00/ 5.50
Gunny	4.50/ 5.00
No. 1 Domestic Manila Rope	6.25/ 7.50
No. 1 Foreign Manila Rope	5.25/ 6.25
Domestic Sisal Strings	4.00/ 4.50

COTTON LINTERS

Memphis Market

f.o.b. Oilmills

Week Ended April 18		Per 100 lbs.
Grade 1	n. a.	
2		
3		$9.75/ $8.50
4		8.00/ 7.50
5	1 cut—felting	7.00/ 6.00
6		5.50/ 5.00
7		5.00/ 4.50

*Based on 73% cellulose.

Lubrication of Pulp Mill Machinery

Modern equipment, designed to run faster at higher temperatures and pressures under heavier loads, requires improved lubricants and lubricating procedures.

B. Weetman,

Research & Technical Department,
The Texas Company,
Beacon, New York

In an era that has been highlighted by tremendous advances in mechanical developments along all fronts that affect our national economy and an easier way of life, the petroleum industry can take considerable pride in its contribution to these achievements. During the past fifty years, industry's equipment has been designed to run faster at higher temperatures, loads, and pressures. This has not only necessitated mechanical design changes, but also the use of improved lubricants and lubrication procedures which minimize mechanical difficulties under the more severe operating conditions. Success must be attributed to the excellent cooperation of all concerned,—the machine designer, machine operator, and lubricant supplier.

The paper industry enjoys an enviable position with an ever increasing contribution to our present mode of living. It is the third fastest growing industry in the country today and has perhaps contributed more to our present civilization than any other. We would still be in the dark ages were it not for the manufacture of ample supplies of paper for the printing of the textbooks on science, medicine, and philosophies which form the framework of our present better way of living, and the newspapers which appraise us daily of the happenings over an active world.

In spite of the fact that pulp making is fundamentally chemical in nature, it is dependent upon mechanical equipment at each step in the processing to insure continuous production of a uniform product. Fortunately, this equipment is largely independent of the raw material used and the method of processing. This greatly simplifies the problems of the lubrication engineer who has the responsibility of keeping all the equipment operating with minimum shutdowns, which contributes to low production costs. This is important as the value assessed against downtime for modern high speed machines during a period of equalized product demand and production ranges from three to eight thousand dollars an hour and is much greater than in the past.

The manufacturers of paper machines and the auxiliary equipment found in paper mills have done their job well. This is manifested by the fact that some fifty-year old units continue to operate alongside of their modern counterparts. In many cases, these older units have been modernized as much as is practical and are currently operating at many times their original design capacity. This situation often results in a number of different style bearings and methods of lubricant application and may require more than the normal number of products to insure economical lubrication. Lubrication recommendations for the same or comparable pieces of paper mill equipment cannot be sterotyped due to the variations in temperature and moisture conditions under which they operate. This is especially applicable to all outdoor wood handling operations up to and including the chippers. Equipment in the northern mills which is exposed to snow and sub-zero temperatures will require radically different lubricants than the same equipment operating under less severe conditions in the South. During the past fifteen years, the petroleum industry has developed lubricants for use under adverse temperature and moisture conditions. These developments have minimized many of the lubrication problems on paper mill equipment operating under difficult conditions.

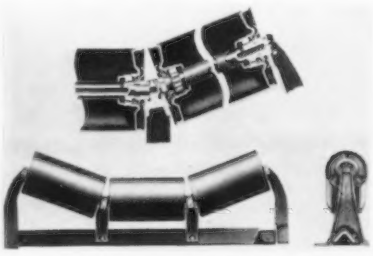


Figure 1—Conveyor belt idler rolls.

Any integrated operation as large as that found in our modern paper mills is dependent upon sound design to furnish a continuing and adequate supply of material to succeeding phases of the process. This requires a minimum downtime on hundreds of individual mechanical units with thousands of bearings and gears which demand proper application of correct lubricants to insure against shutdowns due to lubrication difficulties or corrosion. It is not too difficult to select proper lubricants for the equipment involved but the frequency of application will vary considerably due to age of the equipment and efficiency of those responsible for this phase of the operation. The equipment used in each step of paper manufacture is associated with water and it can be expected that water will contaminate the lubricants to a varying degree. This necessitates the

selection of lubricants which can tolerate water contamination by continuing to prevent rusting and corrosion while providing satisfactory lubrication.

Lubrication in a paper mill is an around-the-clock operation and must be simplified as far as possible to insure optimum results at a minimum maintenance cost. The reduction of the number of lubricants to a minimum is the most important factor contributing to lubrication economy and low maintenance costs. This dictates the selection of premium lubricants and has the following advantages:

(1) Best possible lubrication at all points
(2) Lower labor costs
(3) Lower lubricant inventory and storage facilities
(4) Less possibility of wrong lubricant application
(5) More dependable inventory maintenance by plant and supplier

A general description of the equipment used in the successive steps of paper manufacture and general lubrication requirements are as follows:

Woodyard

Transportation of logs in the woodyard is by electrically driven belt conveyors which are hundreds of feet long. The belts ride on idler rolls like those illustrated in Figure 1 which are spaced at a few feet apart. In northern mills, conveyor belts may present a problem of high starting torque during cold weather. Three factors may contribute to this condition: (1) belt frozen to the idler rolls, (2) grease in idler roll bearings frozen as a result of water contamination, and (3) the use of a grease which stiffens excessively at low temperature. Proper protection and maintenance will eliminate the first two of these contributing causes while the selection of a grease designed for low temperature operations will eliminate the last cause. Where idler rolls are oil lubricated, it is necessary to use an oil having a pour point below the minimum ambient temperature but with a sufficiently high viscosity to prevent excessive leakage.

There are several uses for chain conveyors in woodyard operations but there is usually enough water present to effect whatever lubrication is necessary. Where additional lubrication is required, the use of a straight mineral oil applied by drip or wick feeding is adequate.

Barkers

While there are a number of different types of mechanical barkers, the drum barker like the two illustrated

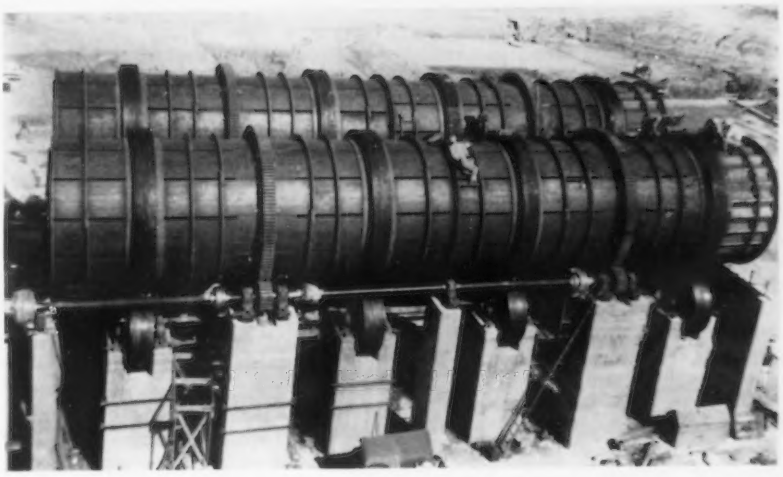


Figure 2—Drum barkers.

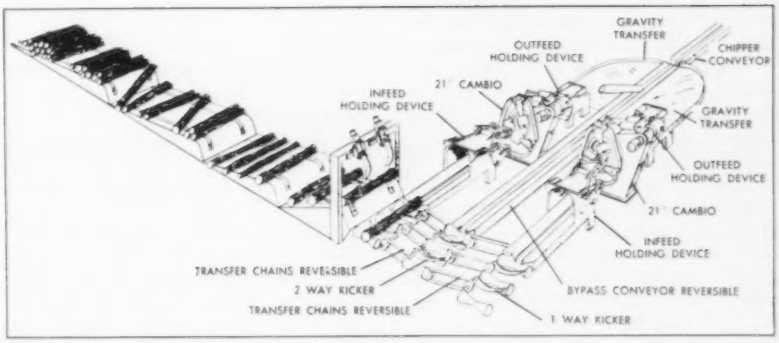


Figure 3—Rotating-knife type twin debarkers.

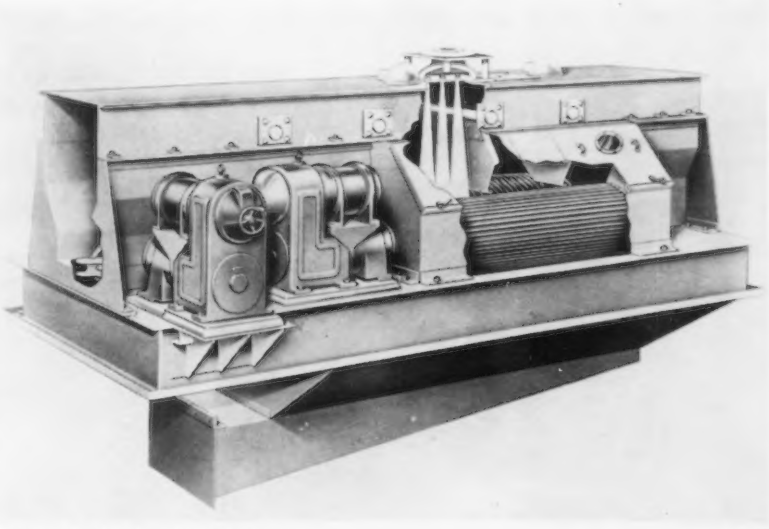


Figure 4—Hydraulic debarker.

in Figure 2 is the most popular in large mills due to its wood saving and ability to handle different length logs. The drum barkers are open-ended cylindrical shells approximately sixteen feet in diameter and forty feet long and fabricated from heavy channel iron. The drums are mounted at a slight angle to the horizontal and revolve slowly and operate with wood being fed into the higher end and discharging from the lower end. The cylinders are maintained two-thirds full of logs, and bark removal results from the friction and pounding of adjacent logs in their passage through the drum.

There are two general methods of mounting these drums and each calls for a different type of driving mechanism with variation in lubrication requirements. In some cases, the drums are placed on multiple trunnion mountings with anti-friction pillow block bearings and are electrically driven through a gear reducer to a large girth gear. The open gears are satisfactorily hand-lubricated with heavy gear oils designed to have sufficient adhesiveness to insure their staying on the gear surfaces, and mild extreme pressure characteristics to reduce wear. Modern trunnion bearings are of the double roller self-aligning type designed to withstand the high loads and rough usage to which they are subjected. These are generally grease lubricated and a relatively soft, water resistant grease, having high load carrying capacity, is recommended due to the continual exposure of the bearings to water and unfavorable weather conditions.

An alternate method of barking drum installation involves suspending it from an overhead frame by means of heavy chains. The drum is driven by means of a motor, located on top of the frame, through a suitable gear reduction to a chain which encircles the drum on a sprocket. In this type of driving mechanism, the chain drives and open gears as well as the plain bearings of the reduction gears and drum guides should be lubricated with the same type of product recommended for the trunnion-mounted drum.

Long, large diameter logs may be debarked singly by putting them through barking machines like those shown in Figure 3 in which high speed adjustable, rotating, curved knives strip off the bark. Logs which are too large for the machine are first cut into "cants."

As illustrated in Figure 4 logs may also be debarked hydraulically by impinging jets of water or steam under high pressure upon the log surface as it is caused to rotate and move forward by spiral bed rolls. Figure 5 illustrates a conveyor transferring bark to the boiler house where it will be burned to provide steam.

Chippers

The chipper is of a simple but rugged construction. It consists of a round, solid iron disc having a diameter as large as nine feet and a normal thickness of four inches with from four to twelve sets of knives placed radially on one side. The disc is mounted on a large horizontal shaft supported by anti-friction bearings. The logs are fed through an inclined spout at an angle of forty-five degrees to the cutting side of the disc. A chipper disc weighs approximately three tons, is electrically driven at speeds of 300-600 RPM. Chippers are subjected to severe shock loading and pounding, and lubricants must be selected which provide bearing protection under these conditions. The chipper bearings are oil-bath lubricated and the use of a mild extreme pressure oil is essential. The grease-lubricated shaft bearings require a relatively soft water-resistant calcium or lithium soap grease.

Grinders

The mechanical pulp grinders in use today vary greatly in size and capacity, and their design provides for different types of bearing lubrication. The earlier machines usually were provided with ring-oiled plain bearings and were lubricated satisfactorily with straight mineral oils. Some older machines had bearings equipped with recessed cups requiring the use of greases or oiled waste. As grinders have increased in size, there has been a tendency toward oil-lubricated anti-friction roller bearings. The lubrication of grinder bearings, especially the roller bearings, frequently presents a problem due to water and/or pulp being forced through the packing and into the bearing housings. This not only impairs lubrication but may result in bearing corrosion. This difficulty can be minimized by resorting to the use of higher viscosity lubricants. In the case of roller bearings which are subjected to greater pressures, wear and corrosion due to a slight water leakage can be eliminated by the use of oils with minimum water sensitivity. It is important that grinding operations be carried out with a true running stone. Vibration and slight misalignment will manifest itself in the quality of the groundwood and final sheet. The lubricants must insure against bearing wear and failure under high loads and the presence of water.

Screens

There are a number of different screens being used for pulp cleaning but they can be grouped into two

Figure 5—Bark conveyor.

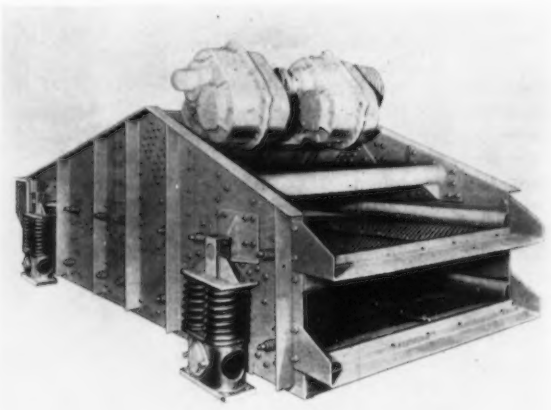


Figure 6—Double-deck low head screen.

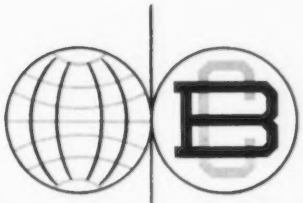
A SHOT OF | MODERNIZATION UPGRADES PRODUCTION

Machine performance is bound to suffer, productivity sure to drop, when one or more sections of a paper machine are lagging due to old age or excessive wear.

Black-Clawson, having assisted hundreds of mills by rebuilding or modernizing all types of paper and board machines and auxiliary equipment, has seen the benefits gained by a realistic attitude toward obsolescence.

Stimulating performance of an ailing machine with a shot of modernization upgrades production . . . loosens the squeeze on mill profits.

Black-Clawson has the "specialists" and the cures. Let us examine, diagnose and prescribe for your machinery ills.



THE BLACK | CLAWSON COMPANY

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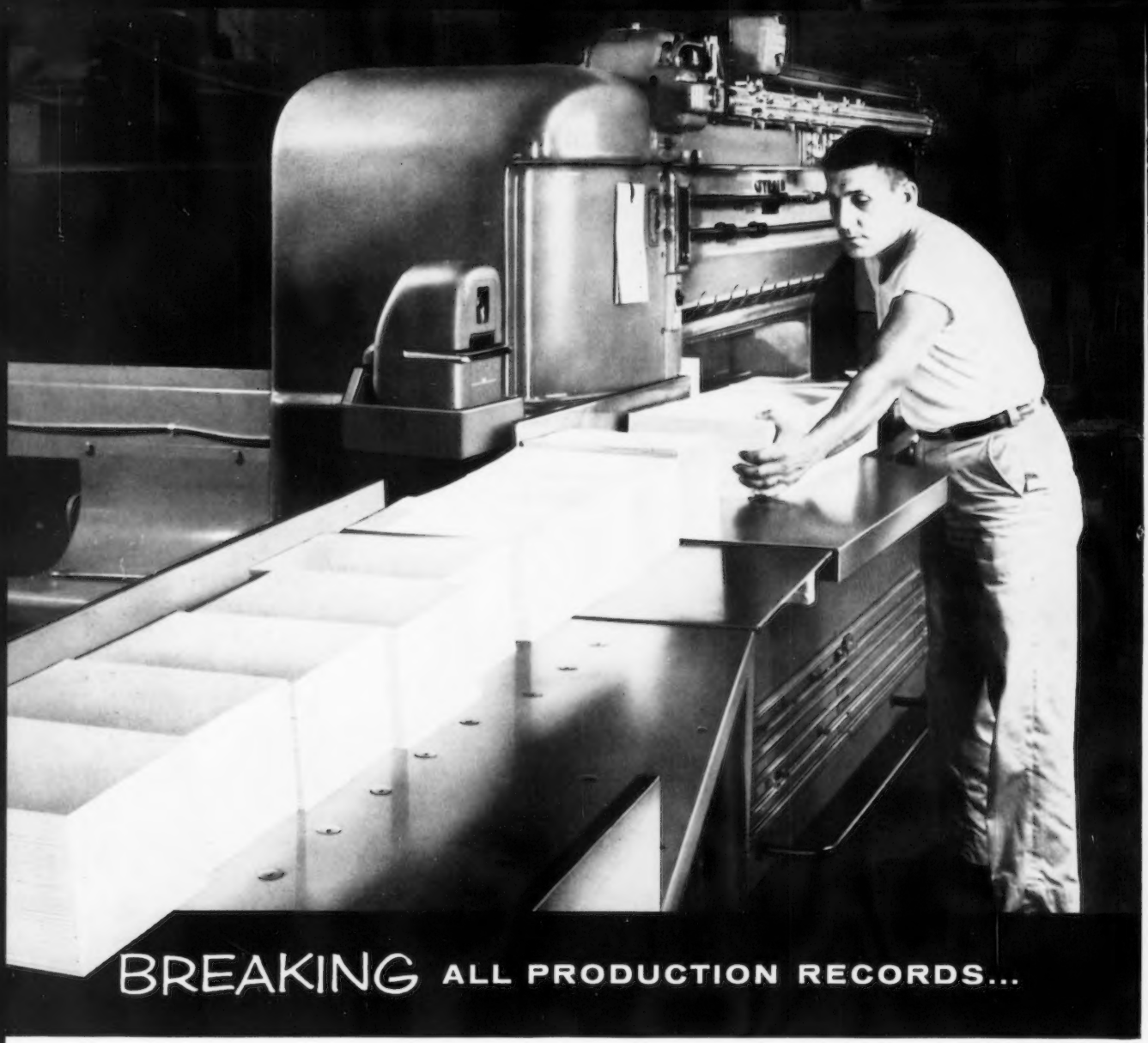

BREAKING ALL PRODUCTION RECORDS...

SEYBOLD 65", 85", AND 100" FULL-HYDRAULIC CUTTER-TRIMMERS

You're looking at one of the Seybold Full-Hydraulic cutter-trimmers that is setting new standards of production and accuracy in leading paper mills and commercial finishing departments throughout the country.

The reason? Operators from major mills spell it out like this:

- Full-hydraulic control of knife bar, clamp and back gauge is the smoothest, fastest cutting combination ever.
- Seybold exclusive Auto-Spacer positions precisely every time, permits full concentration on loading, cutting, and unloading.
- Air-film table takes the backbreak out of paper handling, reduces fatigue, boosts production.
- New table-slot closing device multiplies advantages of backloading, permits uninterrupted work flow.

These are only a few of the reasons. Call your Harris-Seybold representative for the full story. Ask to see the Seybold Full-Hydraulic story—"Accuracy by the Carload"—our fast-moving, 18-minute color film. You owe it to your competitive position.

HARRIS INTERTYPE CORPORATION

HARRIS-SEYBOLD

A Division of Harris Intertype Corporation
4510 East 71st Street, Cleveland 5, Ohio, U.S.A.

Figure 7—Fiber motion on screen.

classifications. Those used for knotting and coarse screening are of the flat tray design like that shown in Figure 6 and have an oscillating high frequency vibrating action. Figure 7 shows the effect of vibration on the fibrous stock. The fine screening is conducted in cylindrical drums with fine slots on the surface which permit passage of the desired fibers while the drum revolves —and sometimes vibrates. In both types of screens, grease lubricated anti-friction bearings are used and relatively soft water-resistant greases should be used. This is also applicable to the eccentric bearings. Mild extreme pressure oils are required in the gear drives.

Wet Machines and Deckers

Wet machine and decker cylinders are supported on grease lubricated anti-friction bearings lubricated with calcium or lithium soap greases. Lead soap gear lubricants are recommended for the gear cases.

Bleaching

With the exception of transfer pumps, the pulp washer is the only item of interest in the bleach plant from a lubrication standpoint.

The rotary filter pulp washer gears and trunnion bearings are lubricated by means of an oil bath or a sight-feed cup. A heavy cylinder oil is recommended for this service since the bearings and gears are always subjected to appreciable amounts of water. The discharge roll bearings are usually furnished with pressure grease fittings and a No. 2 consistency water resistant grease is recommended for use on these bearings.

Next week we will present the second part of Mr. Weetmans article dealing with paper mill lubrication.

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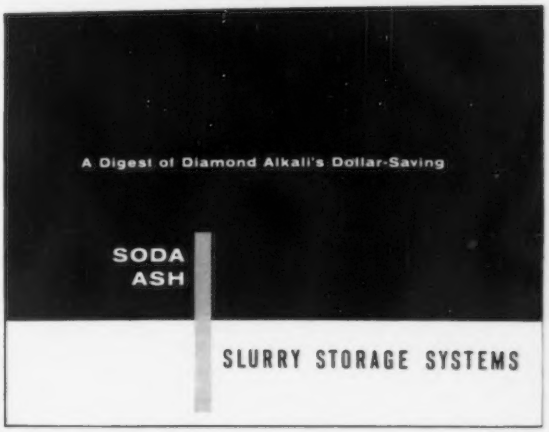

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Production of Groundwood from Steamed Wood Blocks

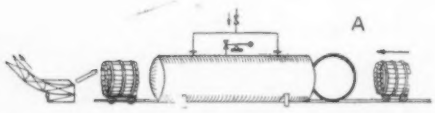
Production of "steamed groundwood" never got a foothold on the North American continent but a considerable number of European mills still employ this process.

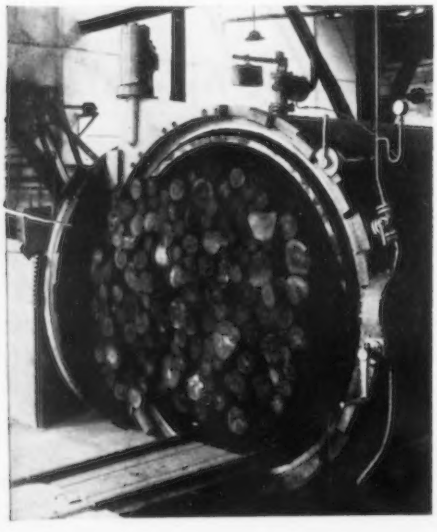
Dr. K. H. Klemm
Manager, München Dachauer Papier Fabriken
Munich, Germany

English text by
G. P. Chinn

The efforts to improve the quality of groundwood by a pretreatment of the wood blocks was commenced with the discovery of the "brown groundwood" process by Oswald Mayh and Moritz von Behrend in 1868. It was found that the quality of the resulting groundwood can be considerably improved if the wood is steamed prior to grinding. It has the disadvantage, however, that the pulp is strongly discolored, hence the name "brown". While this process is still employed in numerous European mills, the end use of the steamed groundwood is generally limited, by its color, to wrapping papers and various grades of board. Many researchers have tried to prevent this discoloration by the addition of chemicals and Weisshuhn developed the "Lignocell" process which did reduce it considerably.

Both groundwood from steamed wood and the Chemigroundwood processes need large installations and high manpower requirements which have limited their introduction to mills where special conditions prevail. This has encouraged efforts to find methods to increase the quality during normal groundwood production and, among these, the addition of chemicals to the grinder shower water and a suggestion of the author for the cold chemical impregnation of wood may be mentioned. In addition, several investigators have tried to replace the grinders by more satisfactory fiberizing machines. One of these, the well-known Asplund Defibrator process has been described. More recently, the fiberizing of wood chips by disk refiners has received considerable attention.





B

FIGURE 1—BROWN (STEAMED) GROUNDWOOD PROCESS
A—Working Principle
B—Method of closing a modern steaming digester

Brown Groundwood Process

While numerous investigations and reports have been published in recent years on normal wood grinding, very little work has been done on the brown groundwood process. As a result, the conditions necessary for the control of the process or for giving optimum pulp quality are not very widely known. The most important paper on this subject was published by Brecht and Kilpper (1).

Power Consumption and Yield

For production of groundwood from steamed blocks, the wood is steamed prior to grinding. This steaming under pressure effects a loosening and partial dissolution of the binding substances in the middle lamella of the wood struc-

ture and, with this, fiberizing becomes much easier. This is the reason the high temperatures in the grinding zone which are essential in the normal groundwood process are not required and steamed wood is usually ground "cold". The initial part of the primary process is moved forward by the pretreatment. While the resulting saving of the energy required to generate friction heat during normal grinding is partially balanced by the steam heat required for pretreatment, the total specific energy consumption for steamed groundwood is lower than that required for the normal groundwood process. In spite of this, the strength properties of the resulting pulp is much higher although this advantage is counterbalanced by the serious discoloration which occurs (depending on the intensity of the pretreatment). Besides this, the yield is 85-90 per cent (related to oven dried wood), or about 10 per cent less than that obtained by the normal groundwood process.

Equipment Used for Steaming

For the pretreatment stage of the steamed groundwood process, the wood is placed in cylindrical cast-iron or copper-lined steel pressure vessels having a capacity of about 10 cords (2000 cubic feet). In earlier days, these vessels were often lined with acid-proof tile but, according to the investigations of Brecht and Kilpper, this resulted in about a 5 per cent higher steam consumption. Generally, horizontal digesters are used and the wood is fed and discharged by hand or, in modern mills, on special trucks. The principle of the steamed groundwood process is indicated in Figure 1A, while 1B illustrates the method of closing a modern digester.

Effect of Steam on Wood

The effect of this steam treatment on the wood was thoroughly analyzed by Brecht and Kilpper. When steamed at constant temperature and pressure (316°F. and 67 p.s.i.), the decrease in pulp brightness occurs very quickly. After 1½ hours, it has been reduced to only 15 per cent of the original and continues to decrease to about 7 per cent after 12 hours, at which time, the pulp produced is very dark brown in color. During this steaming, the moisture content of dry wood (w_f = 15%) increases rapidly at first, then more slowly, reaching w_f = 40 per cent after 12 hours. At the same time, a considerable percentage of the wood substance is dissolved (17% for spruce, 21% for pine after 12 hours). Both the temperature and pressure, as well as the length of the steaming period, influence the resulting pulp quality. The temperature range of 290-300°F. is very favorable for a slow high strength groundwood while it must be kept much lower for a free pulp to be made at a low specific energy consumption.

Table I shows the findings of Brecht and Kilpper on the relationship of the different pretreatment variables and the resulting groundwood pulp. The specific energy consumption for the grinding stage decreases with increased pretreatment time: about 20 per cent less after 6 hours and 25-30 per cent after 12 hours. At the same time, there is a marked increase in the pulp freeness but without influencing the strength properties. This indicates a considerable improvement in the structure of fibres and fines with increasing steaming time.

TABLE I—INFLUENCE OF STEAMING VARIABLES
(according to W. Brecht and W. Kilpper)

Influence of Pretreatment Time at Constant Steaming Temperature (Time: 0 to 14 hours Temperature: 316°F. Pressure: 67 p.s.i.)	Influence of Steaming Temperature at Constant Pretreatment Time (Time: 4 hours Temperature: 240-320°F.)
Moisture content of wood—increases	Moisture content of wood—increases
Discoloration—rapid and continuous for first 8 hours, then remains constant	Discoloration—increases continuously until a dark brown color is reached
Production rate at grinder—continuous increase	Production rate at grinder—rapid decrease to a minimum at 298-302°F. and 65-68 p.s.i., then an increase
Specific energy consumption for grinding—continuous decrease	Specific energy consumption for grinding—increases to 302°F. and 68 p.s.i., then decreases rapidly
Freeness—slight decrease, then a continuous and rapid increase	Freeness—rapid decrease to a minimum at 302°F., then rapid increase
Average fiber length—very rapid increase	Average fiber length—continuous and decided increase reaching a maximum at 320°F., then a decrease
Tensile strength—rapid increase which levels off to a maximum after about 6 hours	Tensile strength—reaches a distinct maximum at 300°F.
Bulk—somewhat lower than for normal groundwood	Bulk—continuous and rapid decrease
Dissolving losses—rapid increase at first, then more slowly	Dissolving losses—increases more and more quickly with increasing temperature

Pre-treatment Most Important

It must be emphasized that, with the steamed groundwood process, pretreatment conditions have a greater influence on the final pulp quality than can be exerted by changing the grinding variables. The conditions which are controlled and which are so essential for making normal groundwood are, therefore, less important. Brecht and Kilpper have shown that increasing the grinder-pit temperature may even have an adverse effect. At a lower specific energy consumption, the production rate will be higher and the pulp more free, bulky and absorptive. Pine can be used without experiencing any grinding difficulties although the resulting pulp strength properties are lower than with spruce.

In general, the same type of equipment is used for the screening and refining stages of normal and steamed groundwood. However, the organic acids formed during the pretreatment do require special care to prevent corrosion and stainless steel piping and pumps are recommended. Safeguards against corrosion must also be taken at the screens, refiners and thickeners.

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Electrical Engineers in Our Industry Gather in North Carolina

. . . for the Fourth Annual Conference on Electrical Engineering as applied to the Pulp and Paper Industry

Late last month 125 electrical engineers from across the nation met in Raleigh, North Carolina for the Fourth Annual Conference on Electrical Engineering as applied to the Pulp and Paper Industry. Held in the Riddick Engineering Building on the campus of North Carolina State College, the two day session was highlighted by the presentation of seven interesting technical papers.

Paper Program

The first paper "Coordination of Protective Relays in a Paper Mill", by W. W. Pruitt of J. E. Sirrine Co. (engineers), was a study of relay coordination in the Southern Advance Bag & Paper Division of Robert Gair Company. The complete electrical system of the 750 ton per day mill was discussed, focusing on isolation of failures to minimize production slow-ups, with reliability as the primary objective.

Mr. H. B. Witworth, purchasing agent for the Carolina division of Champion Paper and Fiber Co., discussed the factors involved in the selection and purchase of electrical apparatus. His talk has been published in the April 21st issue of Paper Trade Journal.

From General Electric, G. J. Hess and W. Mikelson treated respectively the application of static control to chemical digesters, and precision measurement of machine speed and section draw.

Particulars on the Westinghouse "Culpak" control, and its use for automation of Bauer Brothers' rapid cycle digesters, were covered by Wesley Roth. The Jujo Paper Company installation of this static digester control, in Japan, was described in detail.

An evaluation of three wiring systems for pulp and paper installations was presented by J. F. Seedley, Electrical Engineer with Bowaters Research and Development Inc., Calhoun, Tenn.

Howard Stephenson of Jervis B. Webb Co., spoke on "Roll Handling with Automatic Conveyor Control." His paper outlined the features required for good custom conveyor control.

Leaders of AIEE Pulp & Paper Industry Subcommittee have informal chat with Professor of Electrical Engineering. L. to R. are G. I. Burner, Rust Engineering Co., chairman of the Subcommittee, C. H. Hudson, General Electric Co., Atlanta, Ga., Subcommittee vice-chairman who was also conference program arrangements chairman and Prof. W. D. Stevenson, Jr.

Principal Addresses

Addresses of welcome were given by Dean J. H. Lampe, School of Engineering, and Professor H. D. Cook, School of Forestry, both of North Carolina State College.

Mr. Henry J. Malsburger, Director, Southern Pulpwood Conservation Association, gave an enlightening luncheon address at the College Union Ballroom. He stated "In the South, the woods are full of prosperity." In explaining the activities of the Conservation Association, Mr. Walsburger stated "The objective of our Association is to help the other fellow grow wood on his land." He further stated that 70-80% of the pulp used in the South comes from privately owned farms of 100 acres or less.

Dr. Newton Underwood, Professor of Physics at the College, addressed the evening banquet held at the Sir Walter Hotel. Speaking on the subject of "Radiological Hazards", Dr. Underwood stated that "The difference between a dead rabbit and a happy rabbit is one half hour of exposure to 1000 Roentgens". He further pointed out that all anyone could do with radioactive material is to move it—"a question of disposition rather than disposal".

L. to R. S. N. Kirkman, Graybar Elec. Co., Winston-Salem, N. C., H. L. Chafin, Colter & Chappell Elec. Co., Winston-Salem, N. C., and R. Blevins, Oxford Paper Co., West Carrollton, Ohio.

At the present time the southern tip of Florida is the least radio-active spot in the United States. The highest counts have been recorded in Cincinnati and Boston, due to the prevailing winds. In pointing out that there is no threshold value for determining damage from ionizing particles, Dr. Underwood stated that the amount of radio-active pollution this nation can tolerate "should be decided on the basis of wisdom, morality, and philosophy." In other words, we must "weigh any solution in terms of gains against losses."

Inspection trips on the last day of the conference included on-campus visits to the research reactor at the Burlington Nuclear Laboratories, and the recently dedicated Reuben B. Robertson Laboratory of Paper Technology.

Future Plans

The AIEE Pulp and Paper Subcommittee Meeting announced that the Conference for 1959 would be held at the University of Maine. Tentative dates of June 11-12 have been set for this conference. Mr. T. A. Likos, Westinghouse Electric Corporation, Boston, Mass., was appointed Program Chairman for the 1959 Conference. It was announced that the 1960 conference would be held in the Southern States Area.

Discussing some of the conference papers are L. to R. T. D. Roberts, Albany, Ga., S. T. Bates, Charlotte, N. C., and S. A. Bobe, Atlanta, Ga., all of Westinghouse. Mr. Bobe is a charter member of the AIEE Pulp & Paper Subcommittee.

PRICES OF MATERIALS

Aluminum sulphate:			
coml. bulk, c.l. wks.	cwt.	$2.00	/ —
iron-free, c.l. wks.	cwt.	3.55	/ —
Casein, acid prec.:			
dom. sh. pt. c.l. (30 mesh)	cwt.	56.00	/ —
Arg. ex. dock	cwt.	19.50	/20.00
New Zealand	cwt.	24.00	/25.00
Caustic soda:			
c.l. wks. solid, 76%	cwt.	4.80	/ —
flak. & grd. drums, c.l.	cwt.	5.20	/ —
liquid 50% tanks		2.90	/ —
liquid 73% tanks		3.00	/ —
China Clay			
dom., dry-grd., airfloat:			
325 mesh bgs., c.l. Geo.	ton	10.00	/12.00
300 mesh, bgs., c.l. Geo.	ton	13.50	/14.50
imp., white, lump, c.l. ex. dock		20.00	/35.00
Chlorine:			
single-unit tanks, works	cwt.	3.15	/ —
multiple unit, 2-5 cars per yr.		5.25	/ 4.05
Lime:			
hydrated, bulk, c.l. N.Y.	ton	24.45	/ —
quicklime, bulk, c.l. N.Y.	ton	21.20	/ —
Gum rosin:			
K. M. N. drums, c.l. Savan.	cwt.	7.80	/ 7.90
Rosin size:			
70%, gum & pale paste, tank cars, south, sh. pt.	cwt.	7.38	/ 7.48
Saltcake:			
dom. bulk, 100% anh. wks.	ton	28.00	/ —
Soda ash:			
light, 58% ash bags, wks.	cwt.	1.85	/ —
bulk, c.l. wks.	cwt.	1.55	/ —
Sodium chlorate:			
drums, c.l., wks.	cwt.	9.00	/ —
drums, l.c.l., wks.	cwt.	9.50	/10.50
Sodium peroxide:			
dms., c.l. E. of Miss.	lb.	.20½	/ —
l.c.l. (same basis)		.21	/ .21½
Sodium silicate, 40° Be.:			
tank-cars, wks.	cwt.	1.20	/ —
drums, c.l. wks.	cwt.	1.55	/ —
47° Be. WW.			
tank-cars, c.l. wks.	cwt.	1.90	/ —
drums, c.l. wks.	cwt.	2.25	/ —
Soybean, protein:			
chem. isol., wks. c.l. bags	lb.	.23	/ —
Starches:			
Corn, multiwalls, c.l. prod. plant:			
pearl	cwt.	6.49	/ 6.75
white, dextrins	cwt.	8.08	/ 8.20
chlorinated	cwt.	8.25	/ 8.35
potato, Idaho, c.l. wks.	cwt.	6.35	/ —
East, fr. all. 50 cents cwt.			
potato, Maine, f.o.b. wks.	cwt.	6.25	/ —
Sulphuric acid:			
60° Be. cbys. c.l. wks.	cwt.	2.00	/ —
l.c.l. wks.	cwt.	2.45	/ —
tank-cars, wks.	ton	18.60	/ —
Sulphur:			
crude, c.l. mines, contract,	long ton	23.50	/ —
f.o.b. vessels Gulf dock	ton	25.00	/ —
Sulphur dioxide:			
liquid, coml. cyl., wks.	lb.	.10	/ .12
multi-unit cars, wks.	lb.	.0535	/ —
Talc, fibrous grd., bags:			
c.l. wks., N.Y.	ton	28.00	/ —
l.c.l. wks., N.Y.	ton	31.00	/36.00
Titanium dioxide:			
anstase, c.l. dlvd. E. bags	lb.	.25¼	/ —
l.c.l. dlvd.	lb.	.26½	/ —
rutile, c.l. dlvd.	lb.	.27½	/ —
l.c.l. dlvd.	lb.	.28½	/ —

NEW LITERATURE

PHOTO METHODS FOR INDUSTRY. (Monthly Magazine) Devoted to industrial photography. Began publication early this year. **Publisher, Everett Gellert,** 33 W. 60th St., New York 23, N. Y.

ROLL CLAMPS. (Data Sheet) Outlines a simplified method of handling bulky paper rolls, which involves the use of fork lift trucks equipped with hydraulic roll clamps of advanced design. **Towmotor Corp.,** 1226 E. 152nd St., Cleveland 10, Ohio.

PREVENTATIVE MAINTENANCE. (Chart) Enforces time-and-money-saving maintenance practices. **Lewis-Shepard Products, Inc.,** Watertown, Mass.

STANDARD DOUBLE-ACTING CYLINDERS. (Bulletin 71000) Covers the design features of the new all steel cylinder and is supplemented with illustrations and dimensioned installation drawings. **Oilgear Co.,** 1560 W. Pierce St., Milwaukee 4, Wis.

THE STATISTICS OF PAPER—1957. (76 p Book). In this edition the previously published historical series have been carried through 1956, and several new tabulations added. On pages 55 through 66 will be found a group of tables showing the quantity and value of paper and board products for 1954, and general statistics for pulp and paper mills, wholesalers and distributors. Price to non-member companies and others not affiliated with the paper and pulp industry is $10.00. **American Paper and Pulp Assn.,** 122 East 42nd St., New York 17, N. Y.

SYNCRO-SPEDE. (Bulletin 1900) Provides graphs and illustrations which demonstrate design principles that enable the motor to accelerate as an induction motor and run at exact synchronous speed without permanent magnets or DC excitation involving collector rings and brushes, etc., **Louis Allis Co.,** 427 E. Stewart St., Milwaukee 1, Wis.

VELOCITY TYPE TOTALIZING FLOW Meter—The Propeloflo. (Bulletin 380-K4B) Contains complete explanation of the operation, installation and functions of this meter. Also includes cutaway photographs, schematic diagrams, accuracy and pressure loss graphs, data tables and charts. **Builders-Providence, Inc.,** 345 Harris Ave., Providence 1, R. I.

TISCO MANGANESE STEEL CHAIN. (16p Catalog) Illustrates a wide variety of chain types which become work hardened with use. Also provides charts which list dimensions for each type, data on ultimate strength, etc. **Taylor-Wharton Co., Div. Harsco Corp.,** High Bridge, N. J.

WALWORTH VALVES. (Bulletin) Contains service ratings, dimensional drawings for each type valve and an exploded view of a globe valve with matching text for each component. **Walworth Co.,** 750 Third Ave., New York 17, N. Y.

GENERAL ELECTRIC HIGH-SPEED MECHANICAL-DRIVE TURBINES. (Bulletin GEA-6581) Meet more than 10 power requirements in the pulp and paper industry. Also describes design features and points out how they meet increased power requirements. **General Electric Co.,** One River Rd., Schenectady 5, N.Y.

McCANNAMETERS. (Bulletin 302) Includes in detail the features of this design that afford space savings of up to 2/3 over previous designs. **Hills-McCanna Co.,** 4611 W. Touhy Ave., Chicago 30, Ill.

MORRIS BA PUMPS. (Bulletin 188) Gives capacities and applications of this medium-range, high speed slurry pump which is available in cast iron, Ni-hard or stainless steel and features a renewable suction liner and semi-open impeller. **Morris Machine Works,** Baldwinsville, N. Y.

NOPCO ESI PAPER COATING COMPOUND. (Technical Data Report) Lists advantages and physical and chemical properties of this compound. **Paper Chemicals Div., Nopco Chemical Co.,** Harrison, N. J.

ALUMINUM PLUG-IN FLEX-A-POWER BUSWAY. (GEA-6173) Lists features, applications, ratings, construction information, description, dimensions, weights, installation instructions and guide-form specifications for this busway. Advertising & Sales Promotion, Distribution Assemblies Dept., **General Electric Co.,** Plainville, Conn.

BAILEY AREA METER TRANSMITTER. (Specification P22-4) Provides table of flow ranges along with operating characteristics and installation requirements. **Bailey Meter Co.,** 1050 Ivanhoe Rd., Cleveland 10, Ohio.

CRUCIBLE SPECIAL STEELS. (12p Brochure) Suggests the application of specialty steels as an aid to better and more efficient production. **Crucible Steel Co. of America,** Oliver Bldg., Pittsburgh 22, Pa.

CORN STARCH. (44p Booklet) Discusses the nature of starch, and describes the starch-manufacturing process, the various types of corn starch and approved handling procedures. An appendix includes an analytical examination of corn starch. Photomicrographs and drawings illustrate the structure of various starch granules. Free. **Corn Industries Research Foundation, Inc.,** 3 East 45th St., New York 17, N. Y.

HOSE. (Catalog Sections) Cover most of the industrial types of rubber hose with detailed illustrations, data on construction, service, sizes, pressures, weights and fittings. Section Numbers 610 Air, M620 Water, M630 Steam, M640 Water Suction, M650 Petroleum, M660 Industrial Fire, M670 Spray and Welding, M680 Special Service. **Manhattan Rubber Div., Raybestos-Manhattan, Inc.,** Passaic, N. J.

COLEMAN JUNIOR SPECTROPHOTOMETERS. (Bulletin 240A) Describes this spectrophotometer now offered in three models and with a choice of four power supply arrangements. Also gives details on wide range of cuvettes and cuvette adapters. **Coleman Instruments, Inc.,** 318 W. Madison St., Maywood, Ill.

FARRIS PICKERING TYPE 4300 HYDRAULIC GOVERNOR. (Bulletin FP-1217) Contains illustrated sales copy, specifications, parts list, installation and operating instructions. **Farris Pickering Governor Co., Inc.,** 400 Commercial Ave., Palisades Park, N. J.

FREDERICK CENTRIFUGAL PUMPS. (Bulletin 108) Illustrates and describes typical centrifugal pumps for use in almost all industries. Also includes construction features. **Frederick Iron & Steel, Inc.,** Frederick, Md.

G-E SPEED MEASURING SYSTEMS. (Bulletin GED-3259) Contains design features and application data on their complete line of tachometer instruments and generators for industrial speed measurement. **General Electric Co.,** One River Rd., Schenectady 5, N.Y.

HORTONCLAD. (32p Brochure) Explains the Hortonclad manufacturing process and lists a variety of available cladding and backing metals. Also outlines their research, design, fabrication and erection facilities. **Chicago Bridge & Iron Co.,** 332 S. Michigan Ave., Chicago 4, Ill.

HYDRAULIC FUNDAMENTALS AND INDUSTRIAL HYDRAULIC OILS. (Technical Bulletin B-4) Introduces the principles of hydraulic systems, with illustrated explanations of the most important types of valves, pumps, motors, torque converters and accessories. Also explains important oil characteristics. **Sun Oil Co.,** Philadelphia 3, Pa.

ILG CENTRIFUGAL POWER ROOF VENTILATOR. (Bulletin 2700) Gives full details on the recently introduced ilg backward Airfoil design blade that permits moving more air with less noise, in both exhaust and supply applications. **ILG Electric Ventilating Co.,** 2850 N. Pulaski Rd., Chicago 41, Ill.

PRECISION PROPORTIONING PUMPS. (Catalog 604) Covers the details and specification of the full line of proportioning pumps. Maximum capacities range from 6cc/min to 730 g.h.p. per feed. **Hills-McCanna Co.,** 4611 W. Touhy Ave., Chicago 30, Ill.

PRESSURE REGULATORS . . . AND HOW TO SELECT THEM. (28p Bulletin 401) Includes a number of graphic tables that permit rapid comparisons of basic regulator characteristics without reference to detailed specifications given elsewhere in the booklet. **Kieley & Mueller, Inc.,** 64 Genung St., Middletown, N.Y.

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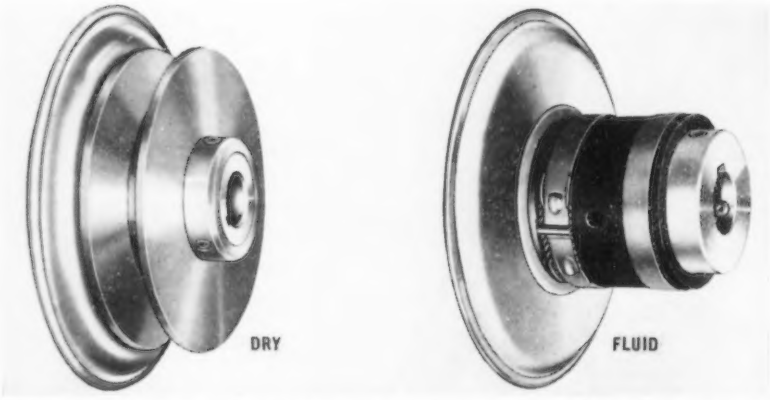
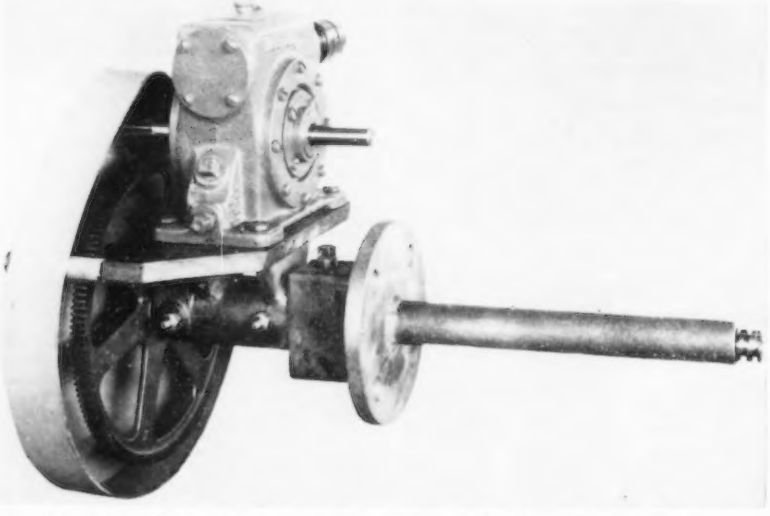


Couplings Help Small Motors Handle Big Starting Loads

An addition to Dodge Manufacturing Corporation's line of Flexidyne dry-fluid drives and couplings is a fractional horsepower unit incorporating all of the features found in the larger sizes.

These compact, economical drives and couplings are identified as 5D and 5C. They are designed for ¼, 1/3, ½, and ¾ horsepower motors at 1750 r.p.m., and are recommended for use with light machines subject to jam-ups or to enable small motors to handle heavy starting loads.

Operating advantages of the drives and couplings include cushioned starting, 100 per cent efficiency at full load and protection against overload. Dodge Mfg. Corp., Mishawaka, Ind., make the units.



Continuous Pulp Sampling Is Aid to Better Bleaching

A continuous, automatic pH sampling device, called the Impco pH sampler is being manufactured by Improved Machinery Inc., Nashua, N. H. Apparently, it is the first successful device available to the industry for continuously sampling liquid extracted from fibrous pulps. Designed primarily for quality control, continuous sampling and testing of the pulp before redilution means closer pH and residual control accuracy in both high and low density bleaching operations.

The device is installed on any tower or pipeline containing 3 per cent to 16 per cent density pulp. Its sampling tube, which extends horizontally about four feet into the vessel, contains a specially designed threaded shaft, which both rotates and reciprocates. This action allows a continuous entrance of liquor into the tube where it is conveyed by another set of screw flights to its collection chamber. It is then pumped through a pH recording meter or to the plant process control testing point for frequent manual testing. About ½ gpm flow is expected with high density systems and about 1.0 gpm from low density systems.

Impco is supplying these patented devices in both #316 stainless steel and Hastelloy "C" materials for either steel, tile lined, rubber lined, or semi-tile walls. The drive consists of a 1/6 horsepower motor.

DC Motors for Contaminated Atmospheres

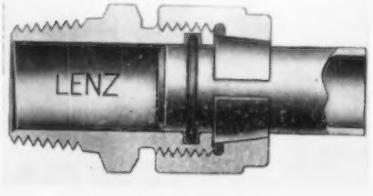
Introduction of a line of totally-enclosed motors with self-contained heat exchanger cooling for operation in highly contaminated atmospheres has been announced by Allis-Chalmers.

Motors are available in constant or adjustable speeds in ratings from 10 through 200 hp. The independent cooling system is unaffected by the speed of the motor and a thermostatic relay in the hot air stream at the commutator end shuts down the drive or operates an alarm in case of blower motor power failure. Wiring is made easier and inspection simplified by means of separate conduit boxes for the dc motor and the heat exchanger unit. Filters which can be cleaned during routine maintenance, sift impurities from the outside air entering the heat exchanger.

Construction and design features of the new motors are described in Bulletin 53B8904, available from Allis-Chalmers, Milwaukee 1, Wis.

Easy, Positive Tubing Connectors

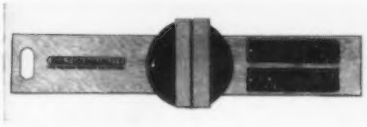
The Lenz O-ring tube fitting is used on vacuum, air, and hydraulic systems. The fitting seals by means of a standard stock O-ring and a split tapered sleeve which holds the tubing in place when the clamping nut is drawn up. This fitting is reported superior in shock and vibration situations, for there is no metal to metal seal, so no concentration of stresses on flares or ferrules to cause tube failures. Available in a full range of unions, elbows, tees, crosses and bulkhead connections in O.D. tube sizes from ⅛ to 2 inches, the fittings may be obtained from the Lenz Co., Box 1044, Dayton, Ohio.



New Line of High-Thrust Vertical Motors

New vertical solid shaft, high-thrust P-base motors in sizes from one to 40 horsepower have been introduced by Reliance Electric and Engineering Co., 24701 Euclid Ave., Cleveland, Ohio. Designed for direct mounting on high-thrust pumps, the new motors are available in protected; totally-enclosed, fan-cooled; and explosion-proof enclosures.

The upper thrust bearing in units of 20 horsepower and up is oil-lubricated to produce cooler continuous operation under extreme thrust loads. The "bonnet" design of the all-weather splash cover permits the "stacking" of additional bearings to continuously absorb high up-and-down thrust loads. The lower guide bearing features Reliance Metermatic bearing design, with a metering plate which automatically regulates the correct flow of lubricant to the bearing. Automatic grease relief prevents damage from grease pressure or over-lubrication. Standard speeds to 3600 r.p.m. are available.



Safer Trimmer Knife Handling

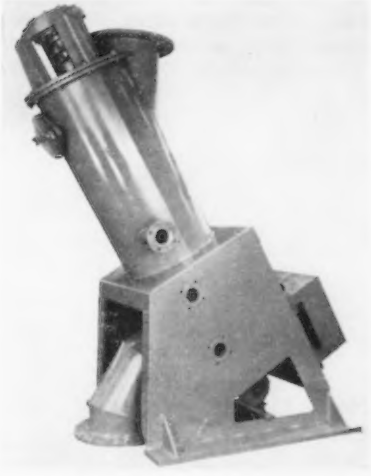
The Bolton paper knife changer developed by John W. Bolton & Sons, Inc., Lawrence, Mass., helps install and remove knives faster, easier and without injury to knife blade or operator.

The knife fits snugly into a slot in the changer and is held securely in vertical position during installation or removal, with its edge riding free. Even the longest paper knives can be installed easily in the trimmer or removed by a single operator, it is reported. Rubber pads supplied with the changer protect the knife and guard the edge from damage from accidental tilting.

Single Shaft Steam Heating Mixer

This high density heating mixer, built by the Improved Machinery Co., Nashua, N. H., claims significant economies in power consumption while maintaining accurate temperature increases with normal steam requirements.

The mixer is composed of a shaft with curved paddles installed in an internally baffled inclined housing. Pulp enters the inlet, and is retarded in its downward flow by a series of alternate horizontal baffles which are located adjacent to steam inlets. The repeated action of the paddles sweeping the pulp from baffle to baffle across the path of incoming steam is reported to accomplish homogeneous steam mixing plus complete and rapid dispersion.



According to the manufacturer, the single shaft mixer closely parallels conventional double shaft mixers in performance. Units of 200 tons per day capacity are V-belt driven by 30 h.p. 900 r.p.m. motors supported on integral adjustable bases. Impco offers units in various production requirements to 500 tons per day of high density pulp.

Rubber Expansion Joints and Flexible Pipe

The General Rubber Corp., Summit & Atwood Sts., Tenafly, N. J., is currently offering a complete line of rubber expansion joints and flexible pipe for use as flexible connections in pressure and vacuum systems handling water, brine, gases and chemicals. The rubber plumbing is said to absorb vibration and noise, prevent stresses due to pipe expansion and contraction, and compensate for minor misalignments.

Expansion joints are available in sizes from ½ to 72 inches in straight-through or reducing types, with or without filled arch or liner, and with either full faced flanges or enlarged slip-over pipe ends. Flexible pipe is available in similar sizes and ends, in lengths up to 50 feet.

Standard pieces are recommended for working temperatures to 180 degrees Fahrenheit and pressures to 150 psi or 30 inches Hg vacuum. Higher temperature and pressure units are available for special service.

Two Tons Up Thirty Feet

The Yale & Towne Mfg. Co., 11000 Roosevelt Blvd., Philadelphia, Pa., has announced the development of lift truck channels applicable to a 10,000 pound capacity Yale gasoline truck which can raise a 4000 pound load to a height of 30 feet.

Designed by the company's engineering department, the extra high channels have an overall collapsed height of 220 inches and are similar in appearance and basic operation to standard Yale roller channels operating with a simplex lifting cylinder.

In developing the 30 foot lift, Yale engineers also determined higher load capacities for lower lifted heights with the channels. Typical of these are 5300 pounds to a height of 300 inches, 6600 pounds to 240 inches and 8000 pounds to 180 inches. Aiding in stability is the use of 9-inch face dual drive tires on the truck providing 36 inches of tire surface on the ground at the front end of the truck.

QUIT WORRYING ABOUT SYPHON TROUBLES

Adopt the Midwest Auto-Flex — the syphon that employs a spring and brace to hold the end of the pipe at proper distance from the bottom of the dryer. No possibility of the pipe shifting position, hence proper evacuation of water and air at all times.

If that isn't enough to convince, realize that the cantilever leverage exerted is less than ½ that exerted by bent pipe syphons, avoiding drag on the journal and preventing the excessive wear that leads to trouble.

Fits all steam joints and quickly installed. Effective at all operating speeds.

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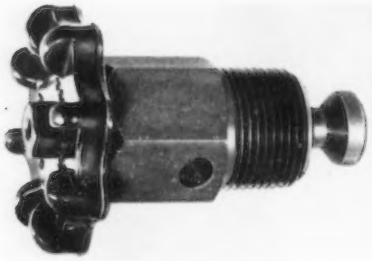
Fast Woodhandling by Twin Pulpwood Grapple

Timberlands Machines, Inc., 169 Front St., South Portland, Maine is currently manufacturing a twin pulpwood grapple to handle 4 or 5 foot pulpwood logs. When employed with a three quarter yard crane, the manufacturer reports the unit will claim over 35 cords per hour with a crew consisting of one crane operator and helper. The empty grapple weighs 2,550 pounds.

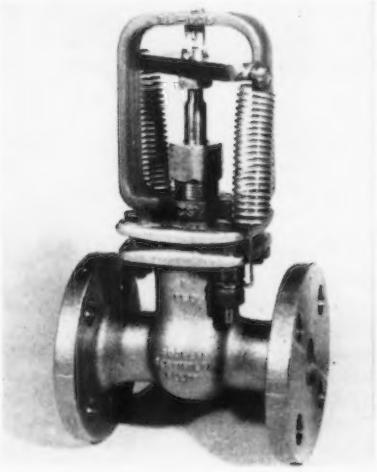


New Bleeder Valve Extends PVC Line

An original design bleeder valve made of corrosion-resistant poly-vinyl chloride has been developed by the Walworth Co., 750 Third Avenue, New York, N. Y.

The bleeder valve can be used for bleeding, sampling or drawing off small amounts of liquid from pipe lines, duct systems, tanks and similar applications. It has no packing and operates in the same way as a drain cock on an automobile radiator or steam boiler. A seal formed by the back seat at the base of the valve stem insures tight closure.

The valve is available in ¾-inch size with male IPS threads. It can be screwed into any female threaded ¾-inch fitting or fixture, or can be used with appropriate bushings for size adjustments.



Fire Protection's Built Into New Valve

The Valve and Fitting Div. of Cooper Alloy Corp., Hillside, N. J., has announced the availability of a new stainless steel fire protection spring-loaded gate valve.

The valve, as a safeguard against fire feeding, is designed to shut off fluid flow as temperatures build up. At 160 degrees Fahrenheit the link melts, the springs are released, and the flow through the valve is shut off. Valves are available in sizes from ½ to 2 inches in monel, nickel, and a variety of stainless steel alloys. Maximum operating pressure is 150 psi.

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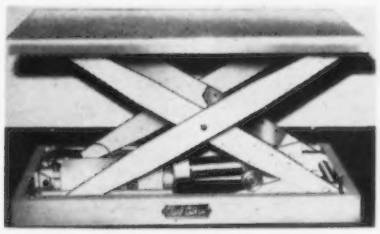
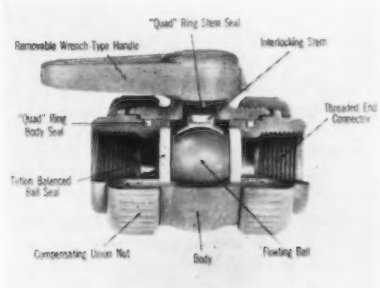


Lift Tables Collapses to 7 Inches

The Clark-Aiken Co., of Lee, Mass., has announced the introduction of a new line of standard lift tables for the paper and associated industries.

Designed for greater space savings, lower costs and more flexibility, the lift tables are available in three sizes: 48 by 24 inches, 52 by 30 and 72 by 42 inches. They are engineered to raise 2000, 4000 and 6000 pounds to heights of 30, 36 and 48 inches, respectively, in less than thirty seconds. The entire unit collapses to a height of seven inches and is easily flush floor mounted.



PVC Ball Valve

An inexpensive, rigid Koroseal polyvinyl chloride, self-lubricating ball valve is announced by the plastics division of B. F. Goodrich Industrial Products Co., Marietta, Ohio. Light in weight and compact, the ball valve provides easy take up to compensate for wear. Inexpensive replacement parts are simple to install.

The quick-opening valve has no metal parts, will not rust or corrode. Recommended working pressures for sizes one-half inch through one and one-half inches are 140 psi at 100-degrees Fahrenheit; 70 psi at 130-degrees Fahrenheit; 100 psi at 100-degrees Fahrenheit and 50 psi at 130-degrees Fahrenheit is recommended for two and three inch valves.

Valve Claims Precise Control of Fibrous Slurries

An air operated diaphragm control valve, type 900, for the precise control of hard-to-handle fluid substances such as fibrous slurries, sludges, pulps and acids, has been developed by the Uniflow Valve Corp. at Cranford, N. J. Especially engineered to permit control of small flows, the new Uniflow valve has an extremely low Cv and a useful rangeability of better than 50/1. It is said to control anything that can be pumped up to 400 degrees Fahrenheit and 150 psi without plugging.

This valve is available in either direct or reverse acting models, and in a wide range of materials, such as cast iron, SS and PVC. Diaphragm materials include, among others, abrasion resistant rubber and Teflon.

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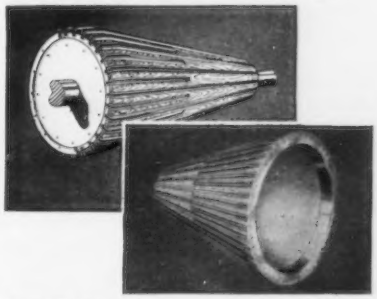
REVOLUTIONARY ADVANCE In Jordan Plug Design



In addition to the strongest and most adaptable solid plug ever developed, Adapta-Plug is available in sleeve form for easy, economical conversion of old worn plugs.

E.D. Jones Adapta-Plug

Completely bandless, easily stripped and filled. Inverted-wedge-type slots hold bars firmly in place, eliminate hazards of slot wear and corrosion. Any desired edge available. Write for Bulletin EDJ-1094.

Complete ONE-PIECE assembly to fit shell of any Jordan

E.D. Jones FULBAR SHELL FILLINGS

Ideal filling for any Jordan, new or old, of any make. No keys or wedges needed. Easy to grind in. Many other advantages. Write for Bulletin EDJ-1094.

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NEWS OF SUPPLIERS

Harris-Seybold Co., has appointed John M. Morehouse "merchandising manager — used machinery." In the newly created post, Mr. Morehouse will coordinate the sale of trade-in equipment for Harris-Seybold in the U. S. and Canada. His headquarters will be at the company's general offices, 4510 East 71st Street, Cleveland 5, Ohio.

The Patton Manufacturing Co. has announced the appointment of Egon Kornicer as project engineer. Mr. Kornicer is a native of Yugoslavia, where he spent many years as plant engineer and technical director of a paper mill. Before joining Patton, Mr. Kornicer was plant engineer of a medium sized board mill in the South.

J. M. Morehouse

E. Kornicer

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The Gateway Range of Fine Papers produced by the Wiggins Teape Group each bear a Gateway in the watermark. The Gateway is recognised throughout the world as a guarantee of quality and fine papermaking. Wiggins Teape are proud of the reputation which they have built up during nearly 200 years of papermaking, originally in the field of watermarked papers and later in addition developing specialized papers. The range of papers now made by the 52 papermaking machines in the Group include The Gateway Range of watermarked papers, Index Boards, Tag Board, Printing and Drawing Cartridges, Brush Coated Art Papers and Chromos, Banks and Bonds, Duplicators, Cream Woves and Laids, Gateway Natural Tracing, Dyeline Base, Cheque and Security papers, N.C.R. (no carbon required), Glazed Imitation Parchment, Genuine Vegetable Parchment, Glassine, M.G. Sulphites, Pure and Imitation Kraft, and base papers for the photographic, plastic laminate, filter and abrasive trades.

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Shuler & Benninghofen, now celebrating its 100th Anniversary, has been informed that it has won the National Safety Council's Public Interest Award for 1957. Category: **Business Magazine Advertising.**

"Ham Feltz," Shuler & Benninghofen's well-known trade character, who appears regularly in this publication, is credited with popularizing such safety slogans as: "Safety, like Freedom is Everyone's Business. Protect Yours" . . . "For Safety's Sake, get 'Hep' and you **won't** get Hurt" . . . "March always comes in like a Lamb or a Lion. But don't **you** get careless with matches and go out like a Light!". . . "An April Fool can feel twice as foolish if he lets himself get hurt any other day in the month". . . "Teach your children to Swim properly—It may save **your** life."

Dorr-Oliver Inc. announces the election of William J. Fox as Vice President for the field of Technological Growth and the appointment of Dr. Elliot J. Roberts as Company Technical Advisor. Creation of these two new top level posts are the first steps of a research and development reorganization and realignment brought about by recognition of the increasing importance of research and development to the company's future.

Food Machinery and Chemical Corp. has created two new operating chemical departments and enlarged its Executive Committee in a move to streamline the organization of its chemical operations.

The new operating units are the FMC Organic Chemicals Dept. and the FMC Inorganic Chemicals Dept. The first includes the Niagara Chemical Division and the Chemicals and Plastics Division, formerly the Organic Chemicals Division. The second includes the Becco Chemical Division, the Westvaco Chlor-Alkali Division, and the Westvaco Mineral Products Division.

Alfred T. Loeffler, FMC Vice-president, is named general manager of the new Organic Chemicals Department. He will be assisted by R. H. F. Dade, who has been named a vice president of the Chemical Divisions. General

manager of the new Inorganic Chemicals Department is Frederick A. Gilbert, who was previously manager of Becco Chemical Division and Westvaco Chlor-Alkali Division. Donald C. Oskin will be assistant general manager under Mr. Gilbert, and has been named a vice president of the Chemical Divisions.

The new division manager of the Westvaco Chlor-Alkali Division is Robert J. DeLargey. He was formerly assistant division manger. Raymond F. Moran becomes manager of the Westvaco Mineral Products Division. Earlier he had been manager of the division's Newark, California plant. Dewey H. Nelson has been appointed manager of the Becco Chemical Division, having served previously as assistant manager and as sales manager.

Stuart Bear, formerly agricultural department manager of Niagara Chemical Division, is the new manager of this division. Henry S. Winnicki continues as manager of the Chemicals and Plastics Division, formerly the Organic Chemicals Division.

Philadelphia Gear Works Inc., 66-year-old manufacturer of power transmission equipment, will change its name to Philadelphia Gear Corp. on June 1. The company operates two plants in the Philadelphia area and a third in Lynchburg, Va. A 30-acre tract of land bordering the Pennsylvania Turnpike near Valley Forge was recently purchased for future expansion.

Penick and Ford, Ltd., Inc., announces a change of address. Effective April 21, 1958 the New York executive offices will be located at 750 Third Avenue, New York 17, New York.

The Foxboro Co., announced that John E. Hewson has been appointed manager of the New York sales region supervising instrument sales activities in the area including New York City and sections of Connecticut and New Jersey.

Mr. Hewson succeeds E. H. Huckman, who recently assumed the position of assistant field sales manager for the industrial instrument firm.

Mr. Hewson joined The Foxboro Company in 1949 as an instrument engineer in the Dallas, Texas branch, and was later appointed branch manager of the company's Tulsa, Oklahoma office.

Replacing Mr. Hewson as manager of the Tulsa branch is D. T. McElligott, a Foxboro field engineer at Dallas and El Paso since 1953. Instrument users in the El Paso area will now be served by J. M. Flanigan, Jr., formerly of the Foxboro, Dallas branch.

Eichleay Corp. has appointed W. R. Schiller sales engineer of its Western Division with offices at 1180 Richards Ave., Santa Clara, Calif.

J. E. Hewson

R. G. Miller

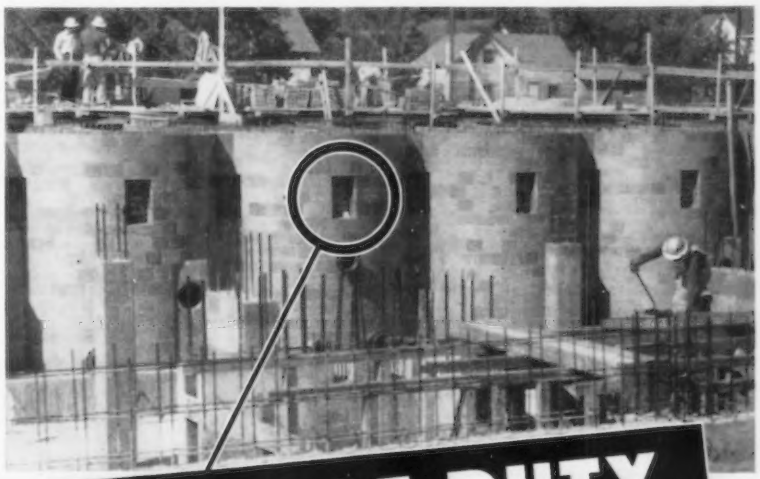
Bird Machine Co. has opened a branch office in Atlanta, Ga., in order to provide the southern mills with application engineering and service on Bird's line of pulp and paper machinery which now numbers 14 items, counting the new Bird Centriscreens and Cycleans.

The new office will be located at 1430 W. Peachtree St., N. W., Atlanta 9, and the telephone number is Trinity 5-2473.

Bird pulp and paper machinery sales and service in the southern territory will continue under the direction of Robert G. Miller who is already well known to pulp and paper makers in this area.

* * *

There are approximately 600 plants in the United States making enough paperboard to cover the state of Delaware, the District of Columbia and keep the sun out of the Grand Canyon.



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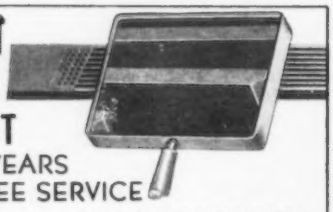

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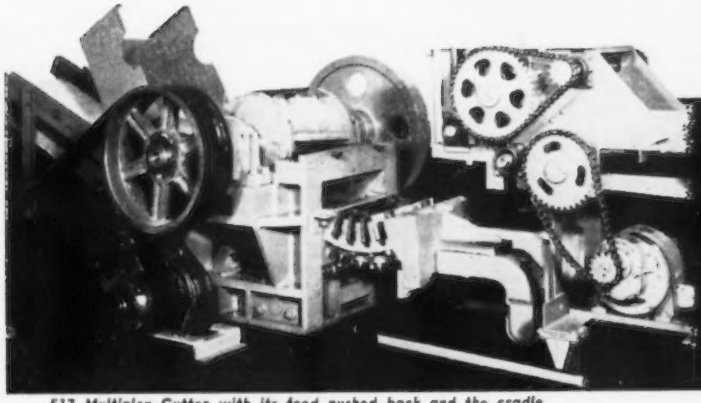

517 Multiplex Cutter with its feed pushed back and the cradle pulled out for knife setting.

TAYLOR-STILES *Multiplex* RAG CUTTERS

produce 12,000 uniform cuts per minute.

The four knives in the revolving element, together with the 1 bed knife and 4 cradle knives, produce, at 600 RPM, 12,000 cuts per minute! This means a finer product—less time in the beaters or fewer beaters—or both.

In addition the four cradle knife design permits adjusting and clamping tight each knife individually, which assures much more efficient operation of the cutter.

TAYLOR-STILES makes a complete line of multiplex, single, and tandem cutters for cutting rags for building paper, roofing, fine writing paper, cigarette paper, etc.

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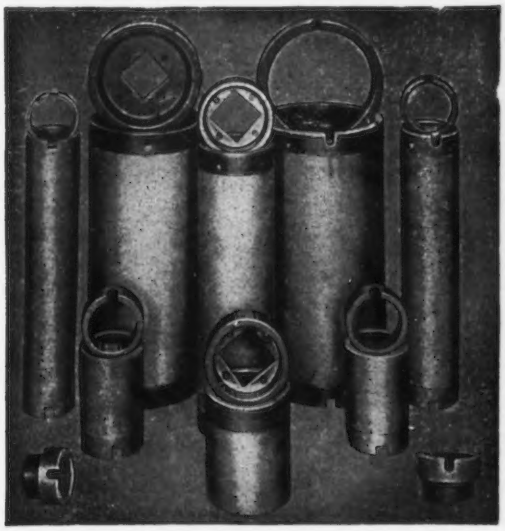

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Straight wound paper cores made in sizes from 2" to 10" inside diameter with any thickness wall required.

Long draw protected slot caps of heavy gauge steel in all standard sizes.

Heavy duty caps with reenforced square hole. This patented feature of reenforcement gives added strength and durability.

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PAPER CONVERTING MACHINERY DESIGNER

Wanted by manufacturer of paper and film bag machinery and printing presses.

Located in pleasant New Jersey community.

Degree not necessary—only the ability and practical background for independent design of converting machinery.

Excellent opportunity for capable man. Salary open.

Please send resume of experience. Box 58-13 care Paper Trade Journal.

TF

PULP MILL SUPERINTENDENT

OPENING FOR PULP MILL SUPERINTENDENT IN NORTHEASTERN BLEACHED KRAFT PULP AND PAPER MILL. MUST HAVE THOROUGH KNOWLEDGE OF RECOVERY FURNACE OPERATION AND GOOD BACKGROUND IN PULPING AND BLEACHING PROCESSES. DESIRABLE TO BE FAMILIAR WITH BLEACHING IN SUPER-BRIGHTNESS RANGE. THE MAN CHOSEN FOR THIS POSITION WILL HAVE COMPLETE RESPONSIBILITY FOR PRODUCTION AND WILL BE SUPPORTED BY WELL-STAFFED MAINTENANCE AND TECHNICAL DEPARTMENTS.

PLEASE REPLY IN CONFIDENCE TO BOX 58-104 CARE PAPER TRADE JOURNAL.

A-28

MACHINE TENDERS OR TOUR FOREMAN

A LARGE TWO MACHINE HIGH GRADE KRAFT BOARD MILL LOCATED IN MIDWEST HAS OPENINGS FOR TOUR FOREMEN. APPLICATION WILL BE CONSIDERED FROM PERSON WITH PRACTICAL EXPERIENCE ON KRAFT LINER BOARD. SALARY OPEN. WRITE BOX 58-114 CARE PAPER TRADE JOURNAL.

M-9

Help Wanted

Paper Mill Superintendent or Paper Mill Manager

Capable of assuming full responsibility together with adequate authority for the operation of a 3 machine tissue mill operating over speed ranges of 1000-2000 FPM.

Must be familiar with the engineering fundamentals of machinery for production of high speed dry crepe as well as good foundation in the maintenance of such equipment. Salary open. Address Box 58-28 care Paper Trade Journal. TF

PLANT ENGINEER for modern two (2) machine non-integrated paper mill located in Lake States. Give full details regarding past experience. All replies held confidential. Address Box 58-100 care Paper Trade Journal. A-28

Situations Wanted

GENERAL SUPT. OR CONSULTANT

Are you getting top production & quality? 35 yrs. practical papermaking. All fine & specialty grades News & Kraft. Lets discuss it.

Address Box 58-107 care Paper Trade Journal.

M-5

Tech. Graduate with 21 years experience in Paper Board Mills, 13 as Supt. and Plant Manager, desires to make change. Thoroughly experienced in the Operation and Management of Cylinder Board Mills. Address Box 58-108 care Paper Trade Journal. A-28

FAMILY MAN CAPABLE OF ASSUMING FULL RESPONSIBILITY OF PARCHMENT OPERATIONS DESIRES CONNECTION WITH PROGRESSIVE COMPANY WHERE ADVANCEMENT IS POSSIBLE. PRESENTLY EMPLOYED AS TOUR BOSS IN PARCHMENT DIVISION. REPLY BOX 58-109 c/o Paper Trade Journal.

M-12

For Sale

FOR SALE

4—Shartle Agi-flo Pumps for constant delivery (anti friction bearings).

4—Bird Machine Co. Jonsson Screens, stainless steel construction throughout, excellent condition. (Only few years old).

1—Shartle 8'' Disintegrator (New, with 125 h.p. totally enclosed induction motor).

1—126'' drilled face Sandusky Suction Press Roll, 20'' diameter, rubber covered, new shell.

1—Noble & Wood Monarch Type ''D'' Jordan, new plug.

J. J. ROSS COMPANY
377 Frelinghuysen Ave., Newark, N. J.
Tel. Bigelow 3-3720

A-28

GIBBS-BROWER CO., INC.
10 Depot Plaza, White Plains, New York
Telephone—Rockwell 1-1130

Mid-West Branch:
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West Coast Branch:
5270 East Washington Blvd.
Los Angeles 22, Calif.

HAVE AVAILABLE:

PRINTING PRESSES

2—12 x 12 New Era Press 3 colors on top, numerous attachments.
1—9'' x 12'' New Era 2-colors on top also many attachments
1—54'' 1-color Rotogravure Press
1—49'' 1-color Rotogravure Press
1—42'' 2-color Rotogravure Press
1—36'' 3-color Rotogravure Press
1—48'' 6-color Henrich-Cottrell Press. 4-Flexo—2 Rotogravure.
1—42''—4 color Cottrell-Heinrich Flexo. press on 6-color frame, suitable for cellophane & Poly.
1—36'' 3-color Flexographic Press
1—32'' 4 color Heinrich Flexographic Press.
1—31½'' 4-Color Heinrich Flexographic Press.
1—31'' two color Wolverine Flexo-Printer
1—30'' 4 Color Kidder Flexographic Press
1—30'' Kidder 6 station Flexographic press
1—26'' 4 color Kidder Flexographic.
1—25'' 8-Color Flexographic Press.
1—24'' 4-color Kohlbach Flexographic
1—24'' 4-Color Kidder Celloprinter
1—7'' Young Label Printer

TAILPRINTERS

1—32'' 2-color 8 pitch.
1—30'' 2-color Dietz 10 Pitch.
1—16'' 2-color Potdevin 8 Pitch.

POWER PAPER CUTTERS

Seybolds: 94'', 65'' & 52'' Model CFF with auto spacing air table & Warner elec. dr. 41'' Seybold Saber; 56'' & 64'' Precision: 50'', 56'' & 65''—10Z; 60''-20th Century: 35'' and 84'' Dayton, 6Z 65'' Holyoke. Sheridan: 36'' new model, Oswego: 44'', 38'', & 34'', 54'' heavy duty.
1—52'' Lawson, Auto Spacer.

CAMACHINES

1—72''—10-04 Shear Cut
1—72''—10-5 with water cooled brake
1—66'' & 2—52'' 9-5.
1—62'' 26-2A with 1C0 score cutting units
1—62'' 26-3A.
1—60'' 40-1-AF.
1—50'' Model 10
1—52'', & 1—42'', Model 24-7.
1—42'' Type 9-5-A Roller Bearing 1500 fpm
1—42'' Type 24-2A
1—30'', 1—42'', 1—62'' Type 6

OTHER SLITTERS

1—48'' Langston Heavy Duty Board Slitter.
1—45'' Ruf Duplex Winder.
1—42'' Bagley & Sewell Model 10 Duplex.
1—40'' Model B Fales Shear Cut
2—24'', 1—30'', 1—36'' & 1—40'' Kidder S.L. Shear cut

MISCELLANEOUS MACHINES

1—72'' Potdevin squeeze roll waxing mach.
1—54'' Coating & Gumming Machine, complete—for Kraft paper.
1—52'' Parry Liner with Reeves Drive.
1—48'' Asphalt Saturating Machine, complete—for Fibreboard, Felt or Kraft Paper.
1—37'' & 1—60'' Hot Melt Coaters & laminators.
1—24'' & 1—46'' Waldron Reverse Coater.
1—Knowlton & 1—Langston Tube Winder with Recutter
2—81'' Dietz Facial Toilet Tissue Rewinders.
1—81'' Hudson Sharp Toilet Converter for both toilet & towels
5—Hamblet Sheeters 42'', 65'', 73'', 84'' & 100''.
1—30'' Peters Sheeter, Model UD.
Die Presses: 1—60'' x 28'', 1—50'' x 22'' Type UA, 2—17'' x 42'' Seybolds.
1—2 Web, 1—3 Web Paper Converting Co.'s. Jr. Dispenser Napkin Machines
1—Diamond Paper Straw Making Machine Model-A.
1—Potdevin Model 111-CF & S Cellophane Bag Machine.
1—Potdevin Garment Bag Machine, Model 224, Ser. #388. Size 5456-302.
1—Roto Model C Cellophane Bag machine
1—48'' Hudson Sharp Embosser-tinter.
1—48'' Unicraft Embosser
3—Waldron Embossers; 1—22'', 1—46'' & 1—60'' (latter two heavy duty) A-28

BEATERS
2—1500 lb. rag beaters, Valley Iron, bandless rolls, 54" x 48", cast iron tubs.

CALENDER STACKS
1—3 roll 30" face friction Calender Stack (Holyoke), 2 iron rolls, 1 cotton roll and 1 spare cotton roll.
1—3 roll 84" calender stack.
1—4 roll 72" Calender Stack. (Extra heavy duty).
1—5 roll 82" face.
1—5 roll 86".
1—7 roll, 84" face.

CHIPPERS
1—96" Murray 4 knife Chipper—anti-friction bearings.
1—84" 10 knife Carthage Chipper. Anti-friction bearings.
24—Chipper Knives 15⅞ x 8¾, 2 slot.

CLASSIFINER
1—Dilts Classifiner, practically new.

CRUSHER & HAMMERMILL
1—Murray Chip Crusher.
1—Jeffrey Hammermill (18" dia. rotor).

COUCH ROLLS
4—Practically new, rubber couch rolls, 18" diam. x 78" face.

CYLINDER MOLDS
8—36" diameter x 94" face, hollow shafts. Very good condition.
2—30" diameter x 72" face.
1—30" diameter x 92" face.
1—36" diameter x 84" face.
2—36" dia. x 54" base.
2—36" diameter x 110" face.
3—36" diameter x 90" face, 18" diameter couch rolls.
1—60" dia. x 170" face.
1—48" diameter x 72" face.

DIGESTERS
1—Biggs 12' 6" (Globe).
Write us regarding your requirements.

DISINTEGRATOR (NEW)
1—Shartle 8" disintegrator with 125 horsepower induction motor. (Totally enclosed).

DRIVES
1—Rice-Barton hypoid enclosed drive, 4 to 1 ratio.
1—#6 Reeves horizontal—anti friction bearings, totally enclosed.
1—#6 Reeves vertical—anti friction bearings, totally enclosed.
1—Sandy Hill right angle 50 H.P. (4.75 to 1)
1—Jones 21 H.P., ratio 10 to 1 (enclosed angle drive).
1—#4 Reeves Drive.
2—Waterbury Hydraulic Variable speed line shaft drives (from 40 to 100 H.P.).
3—Rice Barton enclosed drives, double reduction (14 to 1 one end, 4 to 1 other end).
1—Beloit hypoid enclosed drive 60 h.p. 5 to 1 ratio.

DRYERS
1—28" diameter x 84" face.
2—30" diameter x 40" face, with bearings.
2—30" diameter x 48" face, with bearings.
60—36" diameter x 84" face, complete with frames, gears & bearings.
4—48" dia. x 52" face with frames, gears, bearings.
1—36" diameter x 44" face.
3—36" diameter x 76" face.
6—36" diameter x 80" face.
22—28" diameter x 40" face with frames, gears and felt rolls.
1—16" diameter x 54" face (steel.)
6—48" diameter x 130" face.
2—Cooling Drums, bronze, 36" x 128", with frames, gears and necessary rolls to make up the unit. (After dryers)

DYNOFINER
"Rice Barton," details on request.

EMBOSSING CALENDERS
1—43" 3-Roll Embossing Calender.
1—45" Meadows 2 roll embosser.
3—62" 2 roll embossers.

EXTRACTOR ROLL
1—Extractor roll, 26" diameter x 104" face.
1—Rice Barton & Fales, Extractor Roll, 26" diameter x 104" face.

FELT CONDITIONERS
1—Scofield, 125" face.
1—Scofield, 154" face.

FELT ROLLS
50—Brass Felt Rolls, with Brass Journals, 72" face x 5" dia.

FLAT SCREENS
1—IMPCO—Dunbar 14 plate, bronze vat.
1—8 Plate "Packer".
1—12 Plate "Packer".
1—16 plate "Packer" late type roller shoes.

HOGS
1—Type 15 CF Mitts & Merrill.

HYDRAFINER
1—Dilts, stainless steel filling, anti-friction bearings, excellent condition.

JORDANS
1—Noble & Wood Mammoth.
1—Noble & Wood Monarch, Type D.

KNIFE GRINDER
1—Rogers 128" knife grinder.

LABORATORY EQUIPMENT
1—2' Shartle Hydrapulper.
2—8" x 8" Sheet dryers.
1—12" x 12" sheet drver.
1—Freeness Tester, with timer.
2—Williams Centrifuges.
1—6" diameter Hydraulic Press.
1—Paprex Slowness Tester.
1—8" x 8" Sheet Mould, New.
1—25 lb. Valley Laboratory Beater, with washer.
1—Schopper Tensile Tester.
1—¼ lb. Laboratory Beater.
1—Vissolver.
1—Glarometer.

LAMINATING MACHINES
2—84" Asphalt laminators.

MISCELLANEOUS
1—#1 Miami Selectrap.

POPE REEL
Write us regarding your requirements.

PRESS ROLLS
2—Chilled iron, chrome plated 9" x 72".
1—Chilled iron, chrome plated 14" x 72".
1—Chilled iron, chrome plated 12" x 100".
1—Chilled iron, chrome plated 10" x 74".
8—sets (1 rubber, 1 chrome steel) 74" face x 15" dia., complete with bearings.

PULLEYS
Various cone and assorted pulleys.

PULPERS
Write us regarding your requirements.

PUMPS
1—Morris-10,000 g.p.m. 25 ft. head (all bronze).
1—Shartle Fan Pump, 6,000 gallon per minute with 50 horsepower induction motor.
Various sizes. Centrifugal and Plunger Pumps.

RAG CUTTERS
Write us regarding your requirements.

REELS
1—86" 2 bowl reel.
1—84" 3 bowl revolving reel.
1—100" Rice Barton 2 bowl Reel, heavy duty.
1—123"—3 bowl Revolving Reel.
1—134"—2 drum.
1—72" Dowingtown Reel, 2 bowl.
1—84" 2 bowl (72" diameter rolls).

REFINERS
1—#2 Claflin refiner.

REGULATOR
1—Bird Consistency Regulator.

ROLLS
Felt, Table, Press, Breast, Couch, etc. Various sizes and types. (Bronze, Rubber, Iron, etc.)

ROTARY SCREENS
1—#1A Bird, copper vat.
2—APMEW Rotary Pulp Screens.

SAVEALLS
1—#3 Bird Saveall.
1—LaMorte, 48" diameter x 82" face cylinder mold.

SCREEN PLATES
Bird Rotary screen plates.
Write us regarding your requirements.

SHEETER
1—132" Hamblet heavy duty duplex sheeter, anti-friction bearings throughout, including layboy and backstand.

SHREDDERS
1—16" "Swift" Paper Shredder.
Write us regarding your requirements.

SLITTERS & WINDERS
1—32" Cameron Type 9.
1—42" Cameron Type 9.
3—42" Cameron Type 6.
1—42" Cameron Type 8.
1—42" Cameron Type 26-2A.
1—42" Cameron Type 26-3A.
2—50" Cameron Type 6.
2—62" Cameron Type 6.
1—62" Cameron Type 10-10.
1—62" Cameron Type 8.
1—72" Cameron Type 9.
1—86" Two Drum Moore & White 50" diameter rewind.
1—96" 4 drum Moore & White winder.
1—120" Moore & White 4 drum winder.
1—128" Shear cut winder, drive and variable speed motor.
1—18" Cameron Type 22-3 (Duplex).

SLITTING DEVICE
84"—Quick change slitting device shear cut, complete, practically new.

STEAM JOINTS
18—3" Johnson steam joints (new).

STOCK MAKER
1—Morden Stock Maker.

STOCK PUMPS
1—10 x 20 Shartle Triplex.

SUCTION BOXES
2—150" Stainless steel Suction Boxes.
Write us concerning your requirements.

SUCTION COUCH SHELL
1—Downingtown suction couch shell only. 127½" face x 26" diameter.

SUCTION COUCH ROLLS
1—Beloit, 36" diameter x 246" face, SKF bearings.
1—Sandusky Suction Couch Roll 112" face x 22" diameter, including spare shell.
1—Millspaugh, 30" diameter x 154" face, trunnion anti friction bearings.

SUCTION FELT ROLLS
1—Gilbert & Nash 122" face.
1—Beloit Rubber Covered Suction Felt Roll 109" face x 20½" diameter.

SUCTION PRESS ROLLS
1—Downingtown, rubber-covered 85" face x 22" diameter (complete with vacuum pumps).
1—Sandusky 126" drilled face, suction press roll 18" diameter.

SUCTION PRESS SHELL
1—14" diameter x 100" drilled face, suction Press Shell only.

SUPER CALENDER STACK
1—9 Roll 56".

TABLE ROLLS
22—Rubber Covered 10" diameter x 246" face.
30—4" dia. x 130" face (will cut to size).

THICKENERS
Write us regarding your requirements.

TOILET WINDERS
2—72" Hudson-Sharp (Surface type winder).

TRIMMERS
Write us regarding your requirements.

TURBINE GENERATOR SET
1—150 kw General Electric.

VACUUM PUMPS
1—#6 Nash hytor.
3—#1 Nash Hytor vacuum pumps.
1—#7 Nash Hytor, complete with 75 HP synchronous motor.
1—#4 Nash Hytor vacuum pump.
2—Connersville, 14 x 20.
2—H-7 with motors.

VATS
2—D. J. Murray Co. Vats, iron ends, for 42" x 120" cylinder molds, overflow and counterflow.

VIBRATING SCREENS
2—Hummer electric Vibrating Screens, stainless steel, new.

WEB GUIDES
1—72" Stanford Constant Tension Unit, air operated.
1—110" Stanford Constant Tension Unit, air operated.

WET MACHINES
1—72" Wet Machine
2—60" Wet Machines, complete.

YANKEE DRYERS
1—84" diameter x 56" face.
1—140" face x 12' dia. anti-friction bearings & stands.

Paddy Ross, Pres. **J. J. ROSS COMPANY** Ben Kurs, Treas.
377 Frelinghuysen Ave.* **Tel—Bigelow 3-3720** **Newark 12, N. J.**

For Sale

FOR SALE

SCREENS
3—No. ⌀A Bird Screens with S.S. Vats, S.S. plates cut .014 etc. with motors.
2—No. 2A Bird Screens with bronze plates, cut to suit.

BEATERS
1—Dilts 2500⌀ C.I. Tub Beater with keyed bandless roll, roll 66" dia., 60" face.
2—50" dia., 44" face Dilts bandless rolls with N. & W. stands. New fabricated steel tubs, 1000⌀ capacity.
1—E. D. Jones 2000⌀ high speed Beater with roll 53" dia., 60" face, new bars, cylinder washer.
2—60" dia. 48" face bandless rolls, steel spindles, new bars.
1—Dilts 25⌀ Laboratory Beater.

JORDANS
1—E. D. Jones Majestic Jordan, new fillings
1—E. D. Jones Imperial Jordan, S.S. fillings
1—Emerson ⌀1 Jordan, new fillings
2—N. & W. Pony Monarch Jordans, new fillings
2—N. & W. Monarch Jordans with fillings to suit
3—E. D. Jones High Speed Refiners, S.S. fillings
1—Shartle No. 4 Refiner A. F. bearings, S.S. fillings

CALENDER STACKS
1—130" 8-Roll Bagley & Sewall Calender Stack, bottom roll 24" dia., next 18", next 4, —12", top 16". Heavy box frames etc. loading device, full set of doctors.
1—90" face 8 Roll Calender Stack, bottom roll 18" dia., next 16", next 4—19", top 12".
1—82" 7-Roll Calender Stack, bottom roll 18" dia. next 16", next 4—10", top 12". Good box frames with doctors
2—76" 7-Roll Calender Stacks, one breaker, one finishing
1—90" 2-Roll Stack with frames for 4 rolls, bottom 18" dia., top 12"
2—75" Calender Stacks with 2 rolls each, frames for 4 rolls, bottom rolls 16" dia., top 10".

TURBINES
1—Terry Steam Turbine 250 H.P. with 150⌀ steam, 50⌀ back pressure, No. 10928 at 2700 R.P.M. with gear reduction to 650 R.P.M., has Terry variable speed fluid governor. New in 1947, inspected by Terry engineer and offered in perfect running condition
1—General Electric constant speed Turbine 125 H.P., with 15% variable speed adjustment, 150⌀ steam pressure, 15⌀ back pressure, used one year
1—250 H.P. General Electric Variable Speed Turbine complete with gear reducer designed for variable speed using throttle pressure of 125⌀, back pressure 40⌀
1—50 H.P. Terry Variable Speed Turbine Type G, throttle pressure 110⌀, back pressure 15⌀, complete and in very good condition.

Osborne Paper Mill Equipment Corp.
Fulton, New York Tel. Lyric 2-4254

BARGAIN FOR QUICK SALE

New 45" Beck Automatic Sheeter Model CCSH complete with motor, static eliminator, curl remover, and G. E. Electric Eye Cut Off. Never used. Cost $8,500 new; sale price, $5,500.

GIBBS BROWER CO., INC.
10 Depot Plaza, White Plains, N. Y.
A-28

PRICED FOR IMMEDIATE SALE

LABORATORY BEATER

25 lb. Valley Iron Works beater, stainless steel bars and bed plate. Bronze washer cylinder, Tex-Rope drive, New Condition (used only 4 times).

KURS AND ROSS SURPLUS COMPANY
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Newark 12, New Jersey
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For Sale

FOR SALE

LETTERPRESS PRINTING PRESS (OIL INK) FOUR AND SIX COLOR KIDDER, ROLL TO SHEET FED. EXCELLENT CONDITION. ADAPTABLE FOR PRINTING CELLOPHANE, FOIL, POLYETHYLENE, ACETATE AND ALL GRADES OF PAPER. REPLY TO BOX 58-112 CARE PAPER TRADE JOURNAL.
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FOR SALE

2 10-plate IMPCO Bronze Vat Flat Screens, 2 Screens in line, Motor Bracket and Drive on Discharge end, less motors. Large inventory stainless steel screen plates available.
Also, 5—70" x 32' New Groundwood Felts
Address Inquiry to:
GOULD PAPER COMPANY
Lyons Falls, New York M-5

FOR SALE

1—65" SEYBOLD CUTTER (MILL TYPE) 10-Z-10212 WITH SIDE PLATE TABLES AND AUTOMATIC STOPPERS . . $9500.00.
1—39" SEYBOLD CUTTER (OLD STYLE) . . $750.00.
Immediate delivery. Reply to Box 58-113 care Paper Trade Journal.
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REBUILT — GUARANTEED
NASH VACUUM PUMPS
In Stock, following sizes:
H-10, H-7, H-6, L-5, L-4, TS-7, #4, #2
Brill Equipment Company
2401 Third Ave., New York 51, N. Y.
Cypress 2-5703
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Wanted

WANTED

MODEL 606
STANDARD-KNAPP
COMPRESSION UNIT

THOMSON PAPER MILL,
THOMSON, NEW YORK.
Tel. MY-5-3740 A-28

WANTED

Cast iron dryer 24" diameter x 71" face, 74⅜" between shoulders, journals 4-7/16" diameter x 8½" and 10" long with an extension on the 8½" journal 6½" diameter x 2½" long. Address box 58-111 care Paper Trade Journal.
A-28

Interested in purchasing a good used 52" slitter and rewinder for converting small paper roll specialties. Kidder Merchant model type preferred but will consider other makes and models. Reply Box 58-116 care Paper Trade Journal.
A-28

Converter of tissues, over 25 years in business, yearly volume in seven figures, tissue used middle six figures, wants to consolidate with tissue mill. Reason—partial retirement for principal after 35 years. Customers include many best names in industry. 45 employees, have complete modern equipment and a full time operation. Company name is known coast to coast. Inquire Box 58-115 care Paper Trade Journal.
J-2

BARGAINS

IMMEDIATE DELIVERY

1—66" Holyoke 9-Roll Super Calender Stack, Complete. Rebuilt and used but a short time, in A-1 condition. Drives and Spare Rolls.
1—128" 8-Roll Bagley & Sewall Calender Stack, king roll 24" dia., 4 intermediate rolls 12" dia., top roll 16" dia. Heavy box frames, full set of doctors. Excellent Condition.
26—36" x 76" Complete Dryer Section, Stack, Drives, Etc.
21—48" x 82" Pusey & Jones Dryer Section.
10—48" x 150" Pusey & Jones Dryers.
1—84" Carthage 10-Knife Chipper. Like new, used less than one year.
1—84" Kamyr Machine, Complete, 75 Ton per day output.
1—85" Waxing Machine. Includes electrically operated wax tank, 85" Squeeze Press, 2 Chill Rolls, 1 Rewind Reed. Practically brand new 15 H.P. Vilter, Model W-1500FH, Freon Compressor, Induction draft cooling tower and circulation pump, also backstands, M.G. Set for D.C. Motor Drive, Etc. Excellent Condition.
3—No. 1 Jones Refiners, Late Type. A.F. Bearings.
1—E. D. Jones Imperial Jordon, S.S. Filling.
1—Noble & Wood Mammoth Jr. Jordon, S.S. Filling.
1—14 Plate Impco Flat Screen, Dunbar Drive, Bronze Vat. Direct Motor Driven.
1—110" Pusey & Jones 2-Drum Winder. A.F. Bearings.
1—Hudson Sharpe Toilet Tissue Converting Machine. Serial No. 2124. 8 Spare Mandrel Bars.
1—25" Dia. x 156" Sandusky Suction Couch. Complete with Bearings and Stands.
1—Trimbey Senior Rotary Screen.
1—No. 6 Nash Hyator Vacuum Pump.
3—10" x 20" Beloit Triplex Pumps.
1—12" x 20" Beloit Duplex Pump.
1—54" Dia. x 48" Face Valley Iron Tub Beater.
2—Impco Rotary Pulp Screens.
2—No. 3 Impco Rotary Knotter Screens. S.S. Plates.
1—Sandy Hill Sulphur Burner. Complete.
5—Press Sections—One each of 76", 82", 84", 110" and 112".
1—Tugboat Annie Pulper.
1—No. 244 Mattison 18" Gore Cutting Saw —5 H.P. 3450 RPM, 3/60/220-440 volt. Complete with Conveyor.
1—90 H.P. Terry Turbine. Type G-4000/1000 RPM. For Paper Machine Drive. Complete.
1—No. 2 Jones Pulper. A.F. Bearings. Spare Worm.
1—36" Putman H.D. Lathe—15' Centers.
1—24" x 6' Lodge & Shipley Geared Head, H.D. Machine Lathe, Taper Attachment, Hollow Spindle, Motorized.

Gear Reducers, P.I.V. Drives, Gearmotors, B.B. Pumps, Stock Pumps, Plunger Pumps, Etc. 1C00 Electric Motors from ¼ H.P. to 600 H.P. in Stock.

The above is but a small part of the inventory we carry. We can furnish you with almost anything in the line of paper mill, electrical and machine shop equipment.

We also have a large inventory of new and used flanged fittings of all types at very low prices.

Write—Wire—Phone For Your Needs

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GOUVERNEUR, NEW YORK
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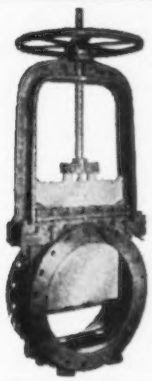

RECORD PAPER & PULP STOCK VALVES "BONNETLESS" SELF CLEARING---"RESIDUE POCKETLESS TYPE"

METALS — I.B.B.M. all iron, bronze or stainless steels, body parts plain or rubber lined.

The photo of 24" Fig. 241 I. B. B. M. valve while illustrating the gate bottom wedge system for forced yair seating and "GUILLOTINE" edge for shearing fibre at seat also shows the packing box and yoke as separate units. Both adjustable.

- The "FAST THREADED" screw stem and ball bearing speeds valve operation.
- The packing box is extra deep, is adjustable and provided with specialized lubricated packings and special type gland and compression bolts.
- The yoke mountings are such that yokes for various methods of gate operation are interchangeable.
- Replaceable gate edge shoes are used in valves 10" and larger. These shoes are of special value when valves are installed stem and pipe horizontal.

"RECORD PRODUCTS EXTENSIVELY USED IN DEFENSE PROJECTS"

RECORD FOUNDRY & MACHINE COMPANY

LIVERMORE FALLS, MAINE, U. S. A.

University of Maine Lectures on Pulp and Paper Manufacture

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Form 2

INTER-OFFICE MEMO
WALWORTH COMPANY

TO ALL UNIT MANAGERS — FROM F. M. JACKSON

ATTENTION — DATE March 1, 1958

SUBJECT 757F PULP STOCK VALVES — REFER TO YOUR LETTER DATED

As an item which may be of interest to you, please refer to Circular Letter 164 dated October 22, 1954, in which reference is made to an 8" Pulp Stock Valve installed at the [redacted] Company. At the time this circular letter was issued, the valve in question was in service slightly more than 8 months. We are pleased to advise that this same valve is still in service in its original location and is still in satisfactory condition.

The valve which was replaced by ours was manufactured by [redacted] Company and had given a maximum life of 9 weeks. It is interesting to note that our valve in the same location has performed satisfactorily for approximately 42 months with no sign of failure to date.

For your further information, Walworth Pulp Stock Valves have now been installed in approximately 55 different mills and to the best of our knowledge all of these valves are operating satisfactorily.

F. M. Jackson
Vice President

FMJ:kg

DECREASE INTERCOMPANY CORRESPONDENCE. WRITE ONLY NECESSARY LETTERS. BE BRIEF BUT DEFINITE.

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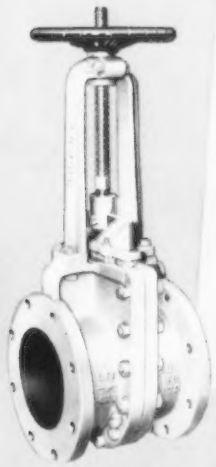

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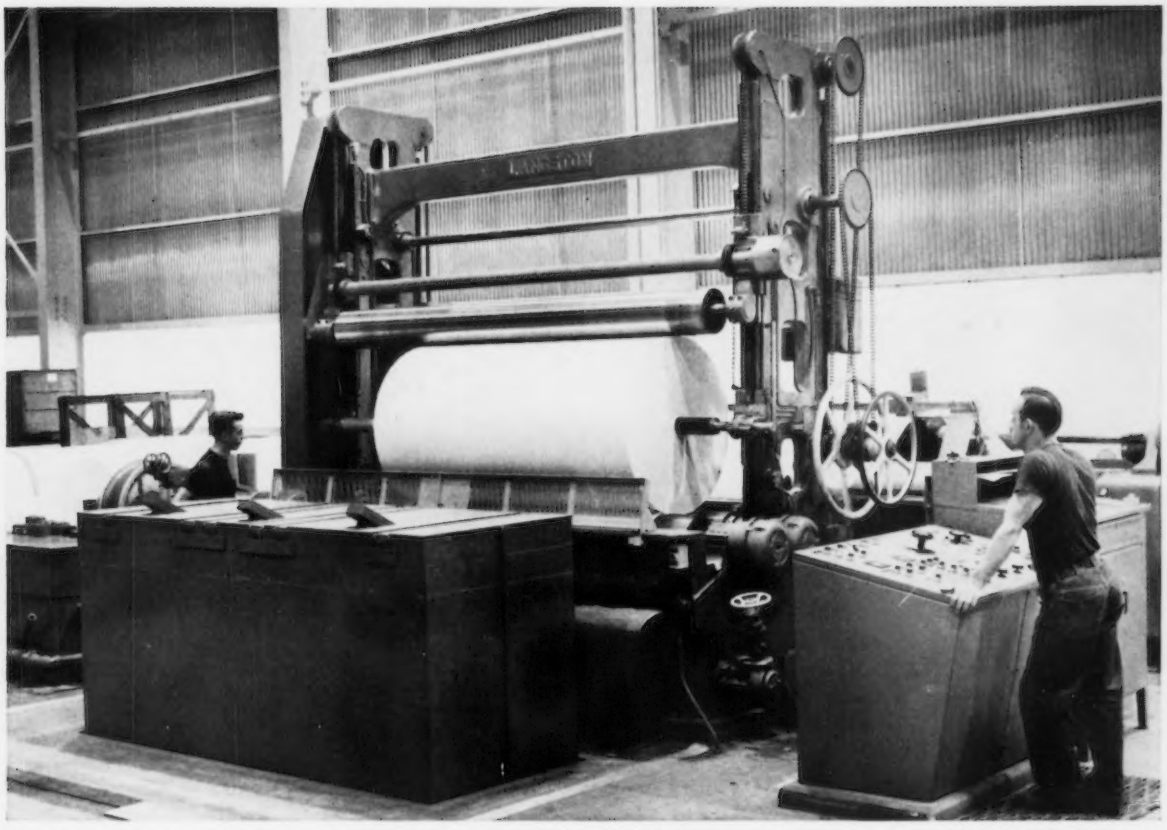


One of the two 104-in. Langston Slitters and Winders in the Glatfelter mill completing rewind. Roll drop table in foreground is up, ready to receive roll when ejected by the winder, and chocks are in raised position to stop the roll. Note console incorporating all major indicators and controls.

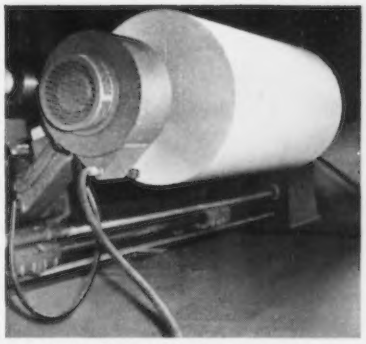
Langston Slitters and Winders turn out tight, even rolls at Glatfelter Mill

Two 104-in. Langston Slitters and Winders have been working in the new mill of P. H. Glatfelter Co., Spring Grove, Pa., for more than a year. They have proved themselves in round the clock production on grades from fine papers to book.

One of the most important features, according to the company, is the constant tension unwind control on the Langston Shaftless Roll Stand, which keeps the tension constant throughout the winding operation. Perfect rolls can be turned out from 9 to 100-lb. stock in roll widths from 7½ to 104 in.

The equipment can be quickly loaded and lined up on the back stand and is designed for easy threadup and gang slitter setting. Hydraulic roll ejectors move the finished rolls quickly from the winding position to the roll drop. Other features include shearcut slitters to eliminate dust; many interlocked controls for extra safety; automatic edge guide control to allow precision trim rewinding of narrow and salvage rolls.

Find out how Langston Slitters and Rewinders can benefit you. Write SAMUEL M. LANGSTON Co., 6th & Jefferson Sts., Camden 4, N.J.



Langston Shaftless Unwind Stand eliminates back-breaking, time-consuming task of hoisting heavy shafts into place. Hydraulically operated arms reach out, pick up the roll, and raise it into running position—a 1-man, pushbutton operation.

LANGSTON *Leadership...by design*